

May 1951

27 - Monthly

BUSINESS

The Journal of Management and Industry

GO OUT

See page 41

A PRACTICAL APPROACH to Mechanised Accounting



It is important to view the problem as a whole. Maximum advantages can only be obtained if a survey is made of existing procedures and a clear conception formed of the information which is necessary.

REMINGTON RAND maintain a staff of Machine Accounting Representatives who are fully qualified to offer competent technical advice and draw up mechanical schemes to meet particular requirements. There is no need today to make drastic system alterations or to adopt rigid or standard

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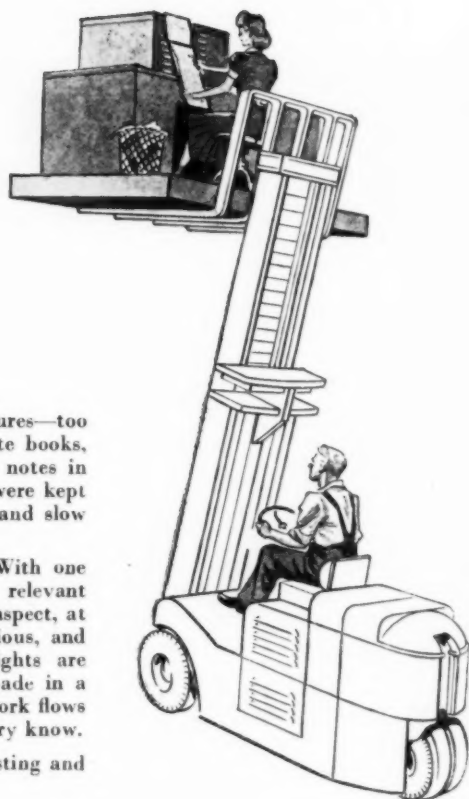
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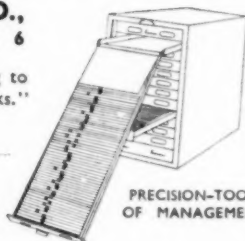
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MAY, 1951



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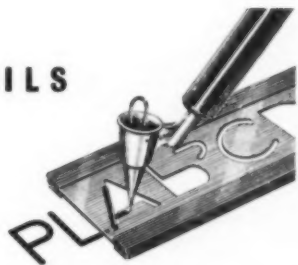
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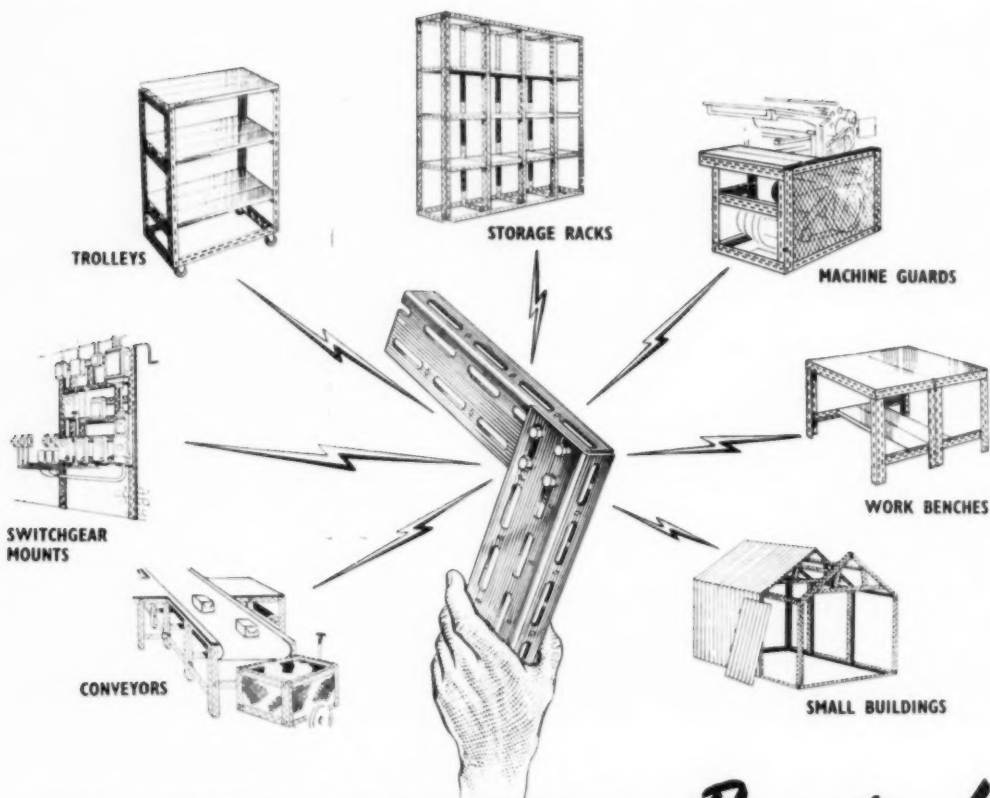
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MAY, 1951



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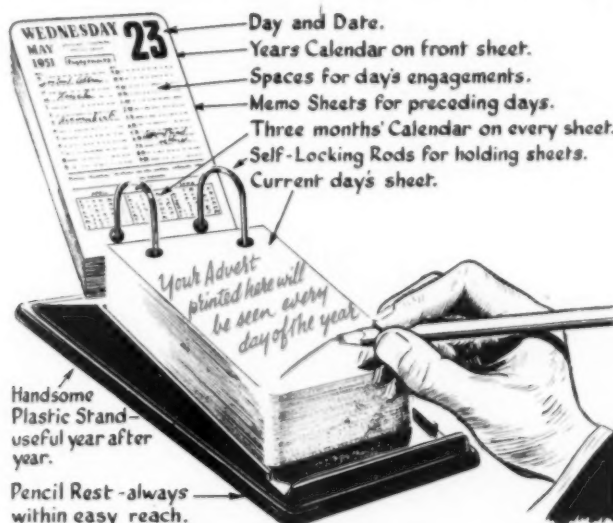
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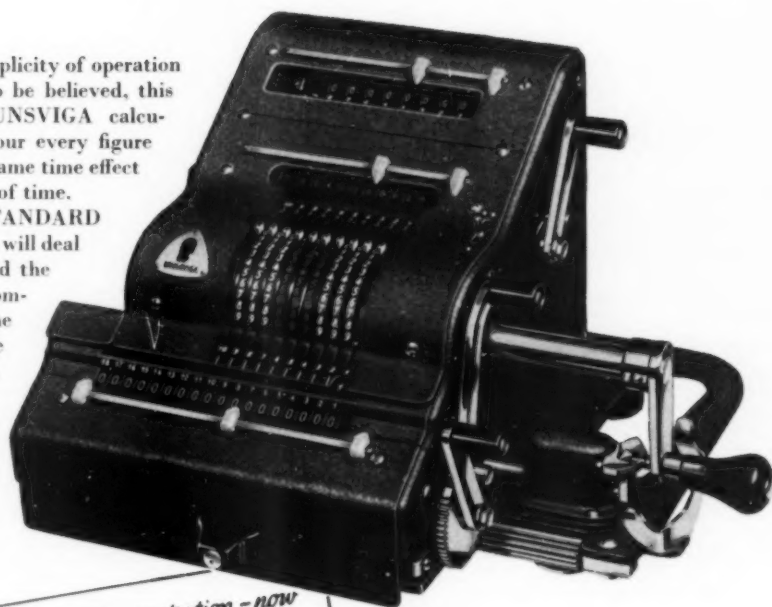
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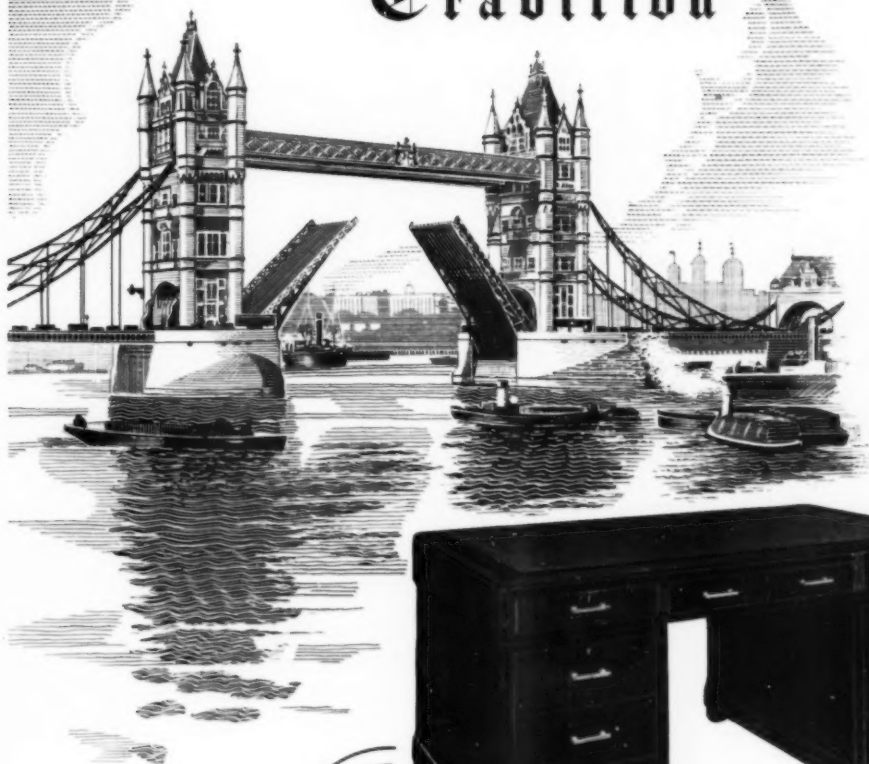
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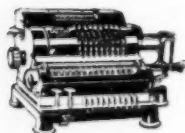


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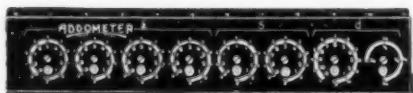


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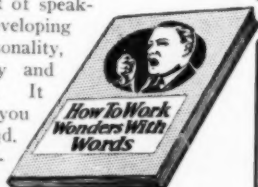


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BUSINESS



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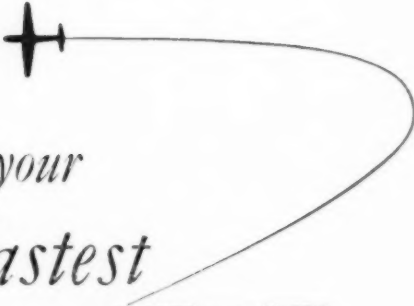
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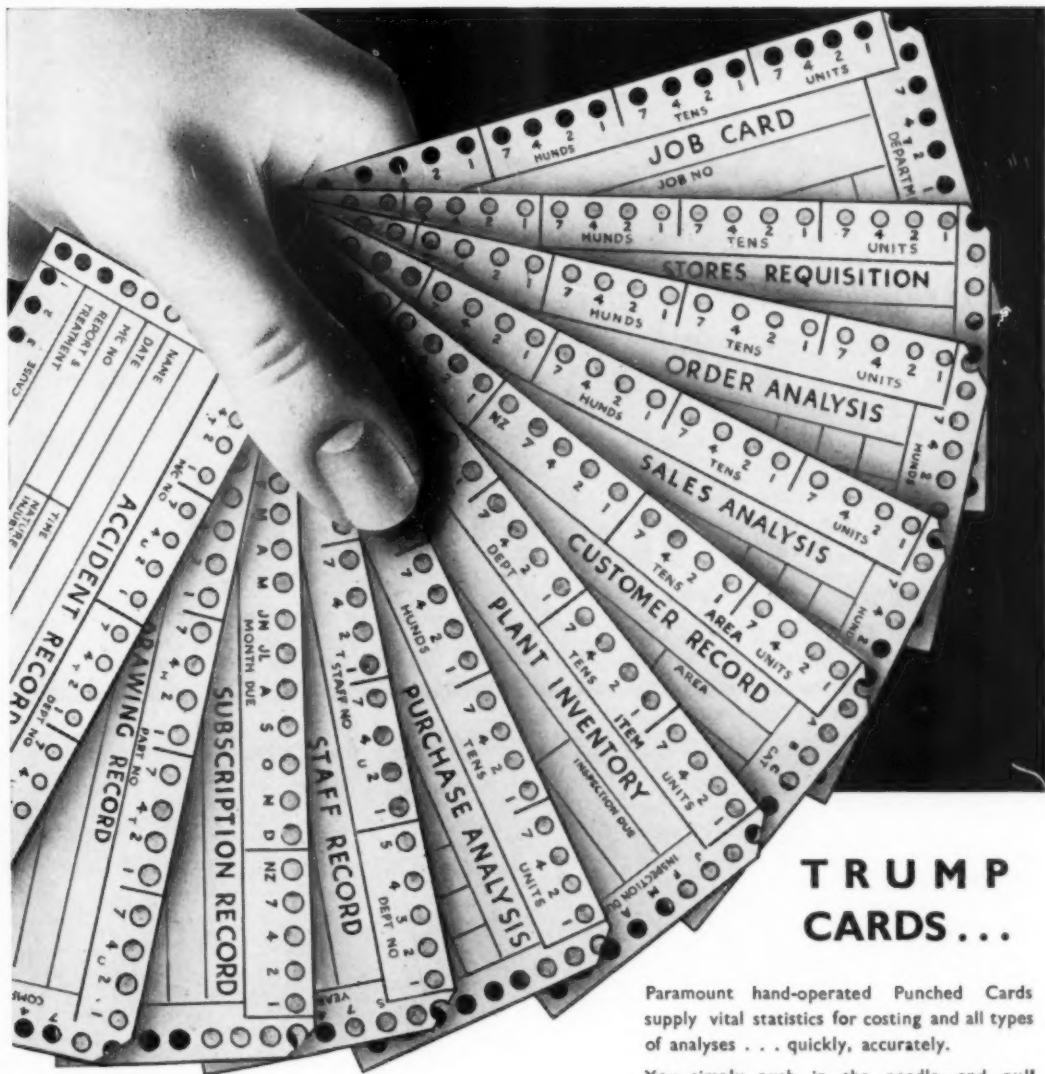
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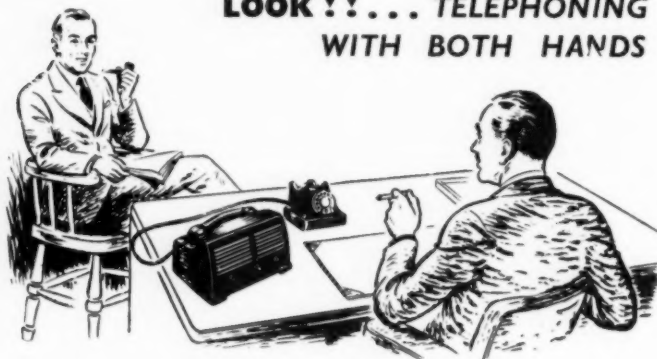
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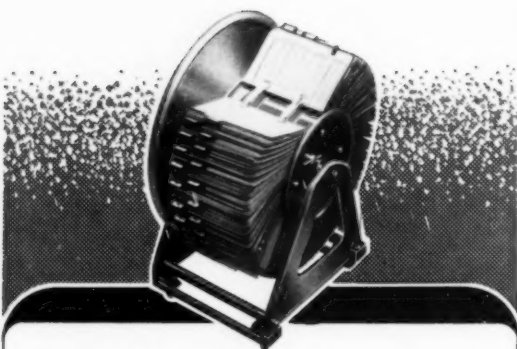
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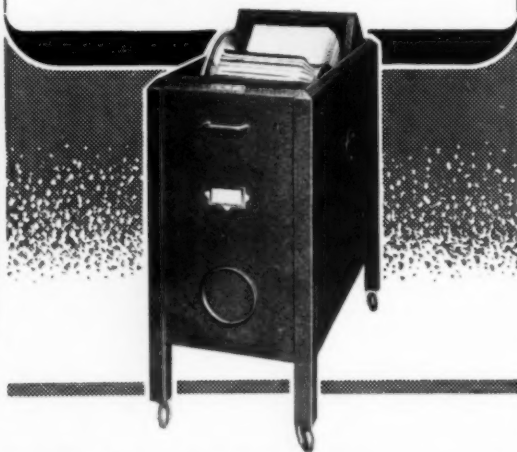
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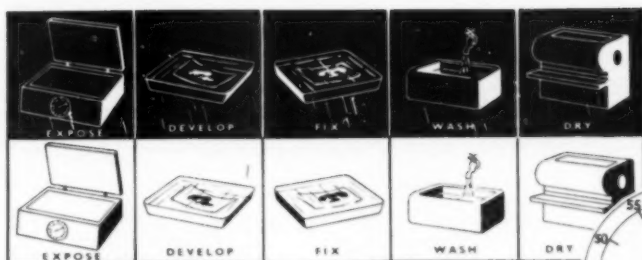
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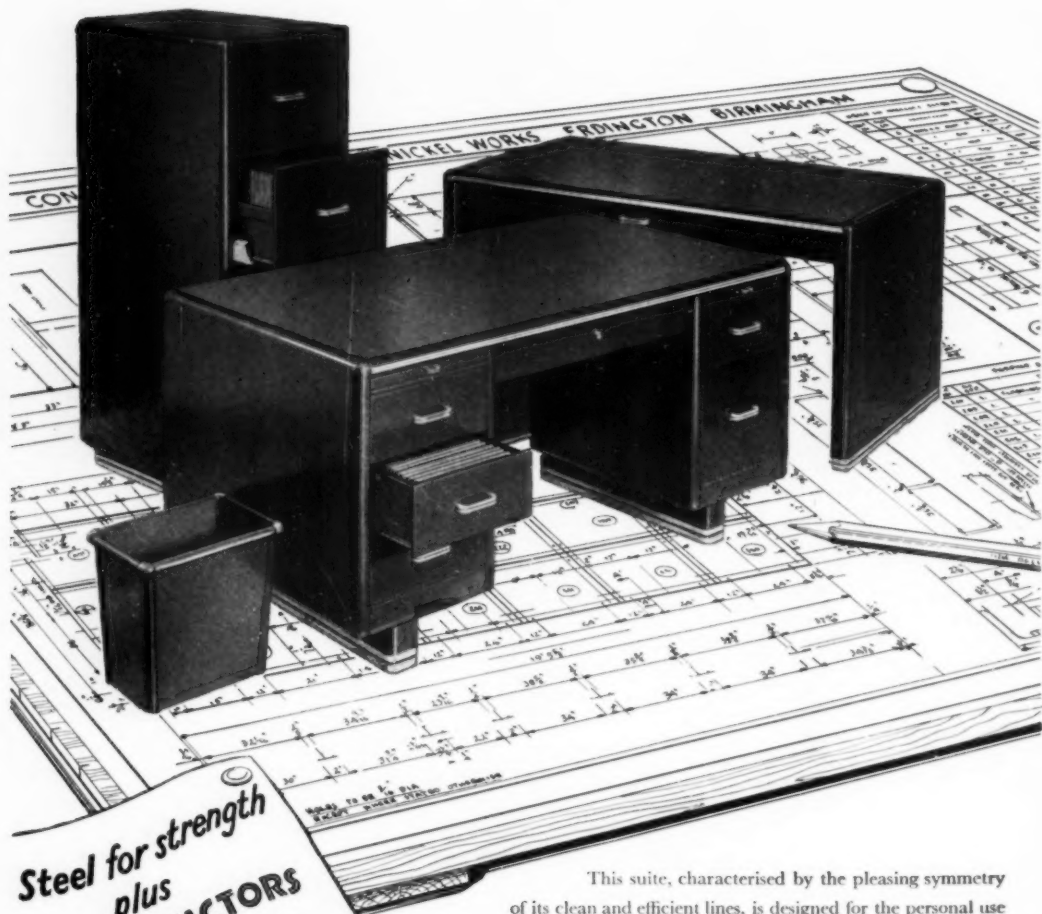
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BUSINESS

The Journal of Management in Industry

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BUSINESS, Vol. 51, No. 5 (incorporating "The Magazine of Commerce," "Modern Business," "System," "Business Organisation and Management," "Business News Digest" and "British Industrial Equipment"). Published monthly by Business Publications Ltd., 180, Fleet Street, London, E.C.4. Tel.: Chancery 8844. Subscription Rates: 25/- a year post free in the U.K.; 30/- a year Overseas.

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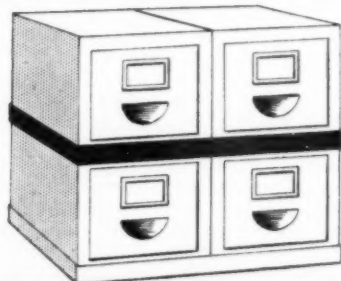
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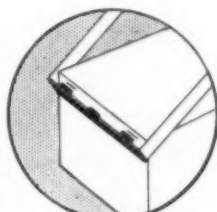
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The MARCH of BUSINESS

WHO READS WHAT?

IN 1949, the *Hartford Business Review* made a survey, based on a questionnaire sent to 2,500 business executives, of the reading habits and preferences of American businessmen.

Reporting the results obtained in our December, 1949 issue, *BUSINESS* suggested that a similar survey of this type should be carried out in this country, and recommended the idea to the British Institute of Management, or the Association of Special Libraries and Information Bureaux.

The suggestion has now partially come to fruition in a survey carried out for the Research Department of Time International by Research Services, Ltd. Some 1,002 directors of British companies were presented with a list of 25 British and American export periodicals and asked to tick those that they read. Some 308 replied.

The most startling aspect of this survey is not so much what the British businessman reads, as what the sponsors think he reads. The list of journals—the guinea pig was given no opportunity of extending it—suggests a very queer picture.

The *Economist* is there, but not the *Statist* or the *Investor's Chronicle*. Their places are taken by such journals as *Tit Bits*, *John Bull* and *Everybody's*. Only two monthly journals covering the management field are included; the widely-read periodicals of such organizations as the British Institute of Management, the Institute of Directors and the Federation of British Industries are omitted. So are such sound commercial journals of substantial circulation as *The Times Review of Industry* and *BUSINESS*. They are replaced by publications such as *American Automobile*, *Pharmacy International* and *World Mining*.

The picture of businessmen's reading that emerges from this survey is thus naturally a curious

one, and we can only suggest that the task of assessing what British businessmen read still remains to be done.

The fact that *BUSINESS* is omitted from the list may be thought to cloud our comment: we remain unruffled, however, for if we have been rejected so have all those of our rivals whose competition we view most seriously.

SOME time ago, pamphlets on political subjects began to appear under the auspices of the "Vauxhall Communist Party." Sir Charles Bartlett, managing director of Vauxhall Motors, Ltd., justly nettled, issued a statement to the effect that any worker in future who linked the name of the company with that of a political party would be dismissed—a decision which no reasonable man would criticize. It must, however, be a matter of some irritation to Sir Charles that the present Minister of Supply continues to sit,

undeterred, as a Labour member, for the constituency of Vauxhall.

MUSIC ON THE TAPE

THOUSANDS of busy executives have found the various magnetic recording instruments, using paper discs, plastic tape, or wire, an invaluable aid in the office. There is a good deal of evidence to suggest that many of them have found the self-same instrument equally valuable in the home, as a substitute for the gramophone. One man, at least, has a superb library of Italian operas recorded from La Scala, Milan, through the (unwitting) courtesy of Radio Italiana. Just how far this domestic use of office equipment has gone remains obscure, but at least one company is now producing, in addition to its standard office model, a "de luxe" version that would grace any sideboard.

So far, no one seems to have attempted the production of re-



The new telephone room at Shell Mex House, recently opened by Shell Mex & B.P. Ltd., is an outstanding example of the way in which planned colour in the office can contribute to good working conditions.

12

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cordings of music for sale to the owners of magnetic recorders. One difficulty, of course, lies in the multiplicity of different types of instrument. In Russia, this difficulty does not arise. Only one magnetic recorder—the *Magnetophone*—is produced, so that recordings of music by Prokofiev, Shostakovich and other composers are now available for sale to those who can afford them. The extent of the market for such recordings is unknown, but the *Sovetskaya Musika* claims ambitiously that "the day is not far distant when the *Magnetophone* will become as widespread and ordinary as the wireless receiver."

Some of these musical recordings were played recently at a London concert. The quality of reproduction was not particularly good, but the machine had been damaged in transit from Russia.

TO celebrate the golden jubilee of the British standards movement, an exhibition of "British Standards—the Measure of Industrial Progress" will be held at the Science Museum, South Kensington, during the fortnight beginning June 18. The exhibition will be opened by the President of the Board of Trade. Admission will be free.

HOUSE ORGANS UNLIMITED

AN unremarked revolution in management-worker relations is the emergence of the house organ. The earliest specimens of this type go back fifty years or more, but it is only within the past few years that one could begin to talk of the house organ movement. To-day nearly every post brings us a new first issue.

These publications vary considerably in size and scope, from such sumptuous productions as *Coal* (National Coal Board) *Ingot News* (Richard Thomas and Baldwins, Ltd.) and *National Post* (National Cash Register Co., Ltd.) to little mimeographed sheets recording the results of the works football team matches and the junior typist's engagement.

The extent to which the movement has now attained may be

MAY, 1951

SALIENT FIGURES OF THE MONTH

"BUSINESS" INDICES

	Latest Month	Month Ago	Year Ago
Production (1946=100)	* 140.8	+ 1.0	+ 10.9
Purchasing Power .. do.	* 111.6	— 1.1	+ 2.5

MANPOWER

Total manufacturing industries .. (thousands)	8,670	+ 11	+ 254
Cotton spinning and weaving .. do.	* 352.4	+ 0.1	+ 9.4
Ccal (on colliery books) .. do.	698	+ 6	— 8
Fig. unemployed (J. K.) .. do.	334.9	— 31.7	— 68.5

PRODUCTION

Index of production (1946=100)	* 141	+ 2	+ 6
Ccal (average weekly output) .. (thousand tons)	4,517	+ 306	+ 186
Steel ingots and castings (do.) .. do.	326	+ 20	+ 1
Cotton yarn (do.) .. (million lb)	* 15.93	+ 0.71	— 0.80
Woven wool fabrics (do.) .. (million linear yards)	* 41.04	+ 6.90	+ 1.39
Passenger cars (do.) (thousands)	10.10	— 0.0	— 0.07
Commercial vehicles (do.) .. do.	5.66	+ 0.19	+ 0.50
Permanent houses completed do.	* 13.15	— 0.82	— 1.21

TRADE

Value of imports (£ millions)	† 303.1	+ 45.3	+ 81.8
Value of exports do.	† 190.1	+ 14.7	+ 5.7
Freight train traffic (million tons)	§ 5.69	+ 0.31	+ 0.05
Retail sales (1947=100)	* 141	+ 13	+ 19

FINANCE

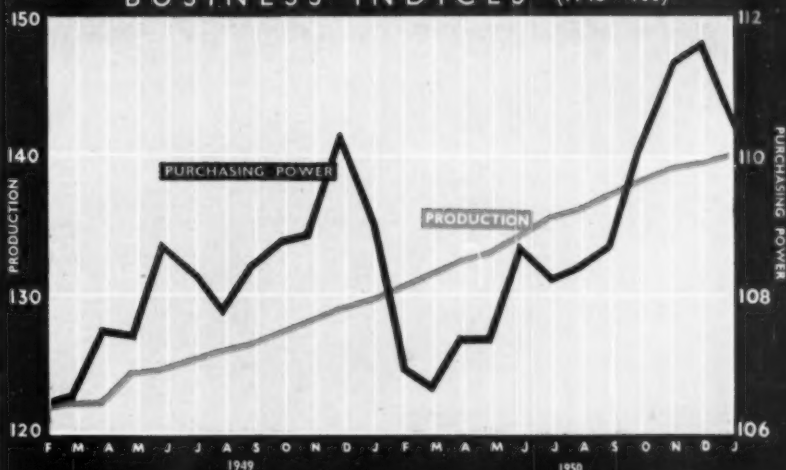
Currency in circulation (£ m.)	1,262	+ 5	+ 33
Deposits in London Clearing Banks do.	6,041	— 219	+ 200
Provincial cheque clearings (av. working day) .. do.	7.99	+ 0.36	+ 0.78

WAGES AND PRICES

Weekly wage rates (1947=100)	116	+ 1	+ 6
Retail prices (1947=100)	118	+ 1	+ 5
Wholesale prices (1930=100)	† 313.5	+ 7.9	+ 68.1
Basic materials .. do.	† 674.2	+ 12.6	+ 352.2
Intermediate .. do.	† 387.4	+ 33.6	+ 101.3
Manufactures .. do.	† 256.5	+ 5.0	+ 28.9
Import prices (1950=100)	125	+ 6	+ 33
Export prices (1950=100)	109	+ 2	+ 12

* January, 1951. † March, 1951. § Four w.e.k. to February 26 1951.
All other figures refer to February, 1951.

"BUSINESS" INDICES (1946=100)



How to cut absenteeism



The main cause of lost time in industry, according to the Medical Research Council, is sickness absence. Much of this absenteeism can be traced to the transmission of contagious ailments through the use of communal towels. After washing, hands should be dried on a clean, fresh, fluff-free paper towel—an immaculate towel like Hi-Dri, designed to be used once, then thrown away!

ROLLER TOWELS MEAN WAITING and CONGESTION

—Lost Man Hours—Transmission of Germs—Expensive Laundry Bills



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gathered from the fact that the British Association of Industrial Editors, a body formed some twelve months ago, is now in a position to call, at the invitation of the Ministry of Labour, a European Congress of Industrial Editors. The congress will open with a reception at the Ministry of Labour, while the main speaker at the congress session will be Mr. E. H. Lever, chairman of Richard Thomas & Baldwins, Ltd. Papers will also be given by speakers from Norway, Sweden, Denmark, Holland, France, Belgium and the United States.

WATER repellent textile finishes, successful on wool and cotton fabrics, have so far not proved satisfactory on nylon or acetate rayon. A new silicone finish developed by the Bradford Dyeing Association is now available for these fabrics, and will probably prove effective on other cloths when research now under way has been completed.

THE BRUSSELS CONGRESS

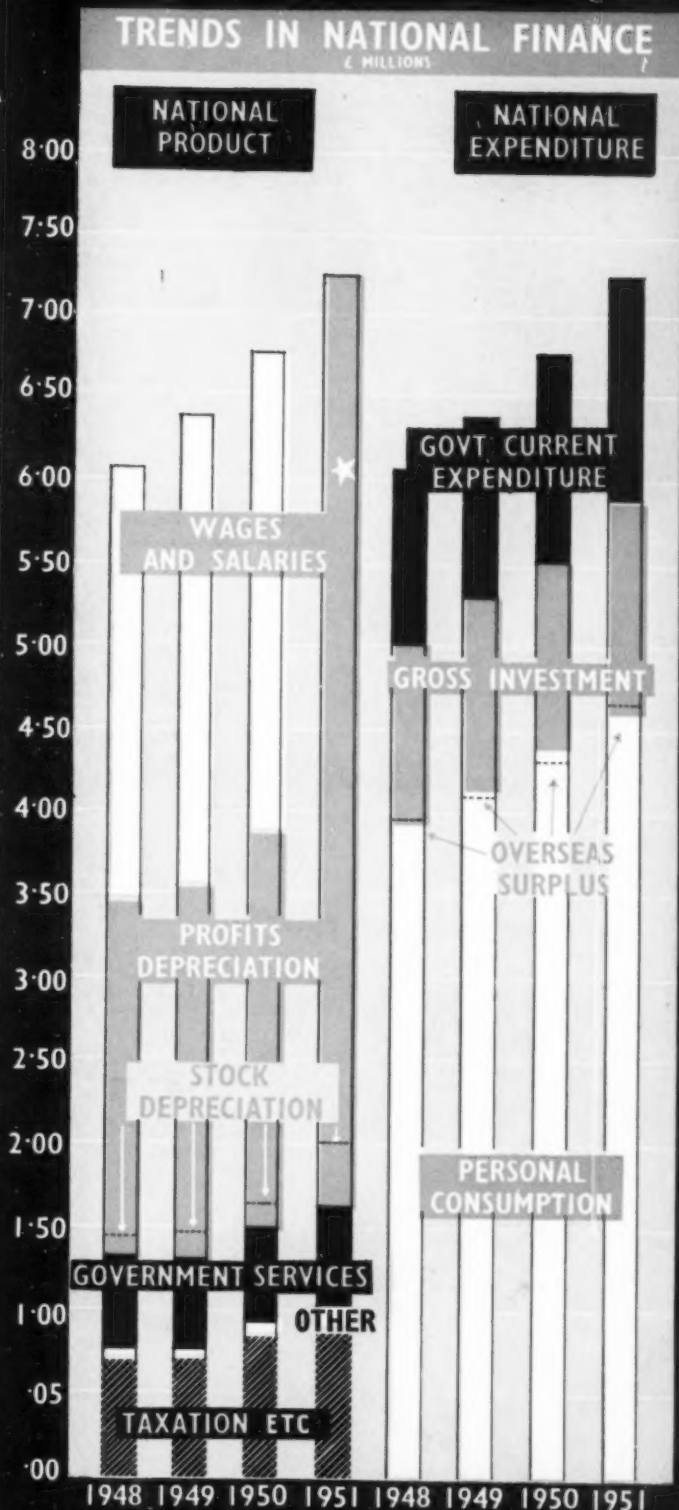
ADVANCE details of the 9th International Management Congress, to be held in Brussels from July 5 to 11, have now been published. The Congress, under

HOW THE CHART IS CALCULATED

The chart, constructed from tables 23 and 24 in the *Economic Survey of 1951* (Cmd. 8195), shows trends in national product and national expenditure for the last three years with forecast for 1951. The section "Taxation, etc.," represents the adjustment 'plus indirect taxes, less subsidies.'

No division is given in the White Paper in the forecast for 1951 for the relative shares of wages and salaries and profits.

MAY, 1951





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the auspices of the International Committee of Scientific Management (CIOS), is organized by the Comité National Belge de l'Organisation Scientifique (CNBOS). Arrangements for the British delegation are being made by the British Institute of Management.

Previous congresses have been based on individual papers. At Brussels, however, the proceedings will consist of an opening and closing plenary session, with twelve sectional meetings, each devoted to a single subject. Each sectional meeting will open with the presentation of a report prepared by one of the national member organizations of the congress. This will then be discussed by a panel of the experts who assisted in the international preparatory work who will also answer questions from the audience.

The British contribution to the congress consists of reports on the structure of large enterprises and on recent developments in quality control. Other reports are on work measurement, education for management, and advanced procedures in public administration (U.S.A.), working methods and personal effectiveness of top management (Sweden), fundamentals in effective farm management (Brazil), the establishment of a common purpose between management and employees (France), the flexible and the variable budget (Netherlands), job evaluation (Switzerland), tested procedures for reducing unit costs of distribution (Belgium), and home design for

simplified household routines (Norway).

The programme also includes works visits and excursions, and a number of short excursions have been arranged after the congress.

The British Institute of Management will in view of the Congress, not hold its spring conference this year; the autumn conference will take place on November 15 to 18.

ALL ABOUT THE BUSINESS EFFICIENCY EXHIBITION

★
Next month's issue of "Business" will be a greatly enlarged number containing a special 100-page section devoted to the Business Efficiency Exhibition at Olympia.

Use the June "BUSINESS" as your Exhibition guide and as a year-round reference work

THE BROKERS ANSWER BACK

THE ways of the London Stock Exchange have long been a mystery—even to its friends. So much so, indeed, that the benevolent but misguided enquirer has stood in danger of losing his trousers for his pains.

This self-imposed paper curtain has had its serious side. The Stock Exchange has long been a fav-

ourite Aunt Sally for left-wing critics. Those who would have defended it have been bereft of information, and have been thrown back on the arguments of the economics text book.

To say that the Stock Exchange acts as a valuable source of capital is one thing. To say that in 1947 the London Stock Exchange raised £414,000,000 new capital for private enterprise is another. Yet this figure was revealed for the first time in a lecture by Mr. I. B. Braithwaite, Chairman of the Stock Exchange Council, given to the Institute of Bankers in March, 1951. Is there any imaginable reason for the four years' delay?

Nor is criticism of the Stock Exchange limited to the lunatic fringe. Many businessmen are impressed with the amount of "bypassing" that has recently been going on, by direct transactions between company borrowers and institutional investors. By quoting figures, Mr. Braithwaite shows that this "bypassing" has amounted to about 7½ per cent. of all new Stock Exchange business—and has immediately put the matter into its proper perspective.

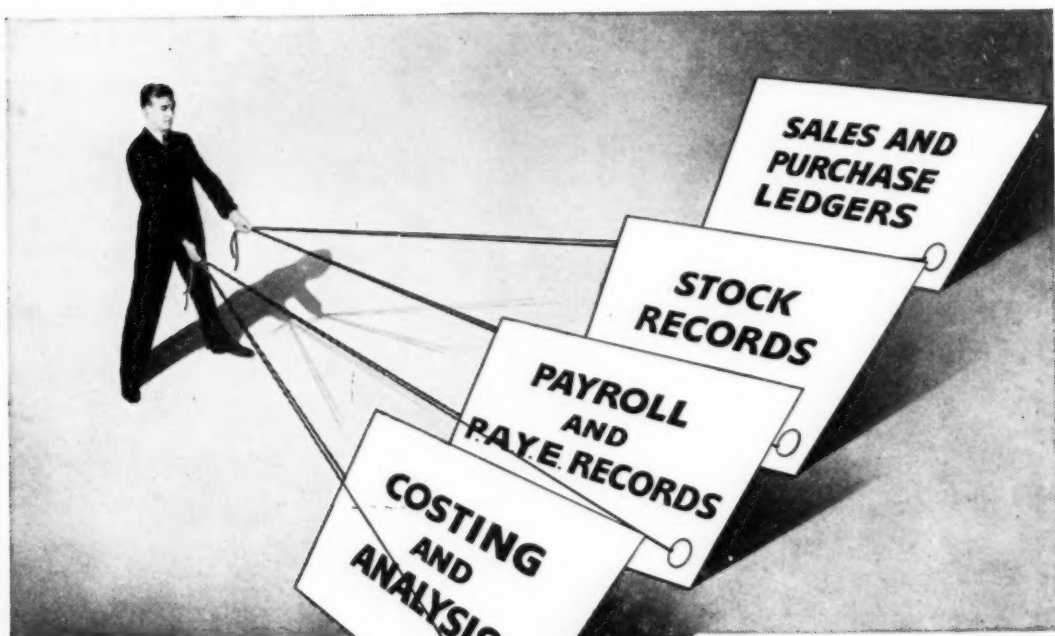
COVER PHOTOGRAPH

The cover photograph shows the sales office in the administrative block of the Sigmund Pumps Ltd. factory at Gateshead. The colour scheme was devised by the architects in collaboration with the Department of Scientific & Industrial Research.

FORDS BELIEVE IN TRAINING



Skilled after-sales service is essential in selling engineering equipment. The Ford Motor Co. Ltd. secure this by training courses at the Ford Service School at Dagenham. These courses are open to the staff of Ford dealers throughout the country, and are widely used: the 10,000th post-war student was recently presented (centre) with a watch. Where staff cannot come to the school, the school (right) goes to the pupils, in the form of a specially fitted mobile van.



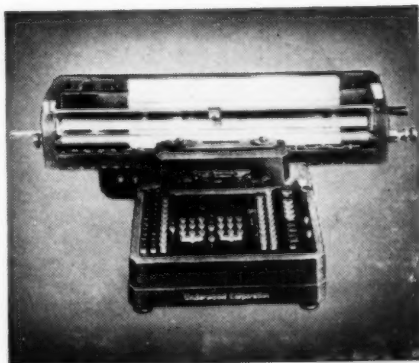
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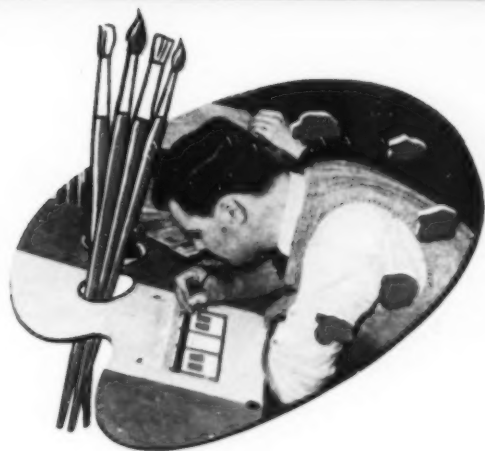
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Colour

can raise your output



A SPECIAL 'BUSINESS' SURVEY OF HOW LEADING FIRMS ARE USING PLANNED COLOUR IN FACTORY AND OFFICE

TO advise the harassed executive to repaint his factory and offices, when his activities are concentrated on the national task of maintaining and expanding output in the face of shortages of raw materials and labour, might seem almost an impertinence.

The irrelevance is only apparent. It is in difficult situations like the present that the marginal factors—the items that will produce just that last ounce of output in a given set of circumstances—become important. *One of these is colour.*

Management is short of raw materials. The best use must be made of limited supplies. Scrap must be reduced, quality raised. But quality depends very considerably on working conditions and particularly on visual conditions. The proper use of colour can, by providing optimum conditions for seeing work, improve quality of output.

Management is short of labour. The only answer is high output per man from a limited labour force. Output, again, depends on working conditions. By improving visual conditions, the proper use of colour will make it possible for workers to work more easily and faster, without strain, and will remove existing sources of eyestrain.

Attractive surroundings improve morale. Morale cannot be measured with a slide-rule; it must suffice to quote in general terms the experience of practical men. But it is significant that the firms whose experience **BUSINESS** reports in the following pages are unanimous that the use of colour has improved relations between management and workers.

COLOUR has two aspects—decorative and utilitarian. Colour in industry is primarily utilitarian. It serves three purposes:

By extracting the maximum value from existing light sources, it secures economy in lighting and even heating, and does much to make good the deficiencies of old and unsuitable buildings;

By securing the best possible contrast between the worker's background, his working area and the tools and raw materials he uses, it makes it easier for him to concentrate on his job;

By using the high contrast obtained from brilliant colours, it identifies, and warns against, the hazards inevitable in any factory.

Colour must be planned. The principles behind colour are the fruit of observation and experience. They must be applied in the light of that experience. Every building, every room, offers a separate problem.

By the **EDITOR**

More and more firms are repainting their factories and offices in bright colours. The result—planned and carried out by practical men—is better quality work, and more of it.

How is it being done? Can one firm's experience solve another firm's problem? **BUSINESS** determined to find out. Much research was conducted, many firms interviewed. Here are the answers. **BUSINESS** believe this to be an important article describing proved methods capable of wide application.

Planned colour is no mere aesthetic fad. It looks nice—but it also pays. Planned colour means restful surroundings, good contrast without glare, concentration on working areas and danger points.



1. Colour in the background

How improved environment aids efficiency

1. Use light pastel shades on walls and ceilings for high reflectivity and good lighting.
2. Lighten dark areas with warm tints—yellow, pink and brown.
3. Treat hot, humid rooms with cool colours—blue and green.
4. Eliminate distractions caused by roof girders, etc., by merging them into the background.
5. Use colour to offset architectural deficiencies.

A LONDON manufacturer recently redecorated his offices. They were in an old building, badly shaped and poorly lit. Previously the walls had been painted a dark green up to eye level, and a lighter green, darkened by years of neglect, above. One wall consisted of a mahogany partition. The floor was of dark brown linoleum. Considerable space was taken up with dark olive-green filing cabinets.

The manufacturer called in an expert, and a new colour scheme was worked out. The walls (including the partition) were repainted a light peach colour; the doors and filing cabinets a light buff. The old linoleum was replaced with a light buff rubber flooring.

The result was immediate and startling. The electric lights, which previously had burned all day long, were used only on winter evenings. The electric fires, which had been burned because they made the place look more cheerful, were only switched on when temperature demanded them. In the 12 months following the redecoration, the manufacturer saved as much on his electricity bill as he had spent on redecorating.

On top of this, the output of the office improved, both in quantity and quality. Desks previously littered became miraculously clear; everybody in the office was more cheerful and co-operative; time-keeping improved, bickering dimin-

ished. Thus in this instance the introduction of colour not only paid a dividend—it also declared a bonus.

Colour and light are inextricably bound together. Only a portion of the light reaching us comes directly from the source—window or lamp. The major part is reflected from ceiling, walls and floor. The amount reflected depends very largely on the colour of the surface from which it is reflected. Dark colours absorb light; light ones reflect it.

The percentage of light reflected

by various colours can be measured by a photometer. Paper white thus reflects 84 per cent. of the light falling on it, golden yellow 80 per cent., primrose or pale cream 75, deep cream 70, and lemon 69. At the other end of the scale, galvanized iron or red brick reflect only about 16 per cent.

The best method of obtaining maximum light is obviously to paint everything paper white. But brightness is not the only factor in good seeing conditions. Contrast is equally important. Even when a worker is concentrating on a mach-



This photograph shows a section of the No. 4 soapery of Messrs. Lever Bros. & Unilever Ltd., at Port Sunlight and gives some indication of conditions before redecoration.

ine, his eye constantly travels from foreground to background; this regular adjustment of focus may, if too often or too vigorous, cause fatigue and eyestrain. An extreme adjustment from black to white and *vice versa* is more tiring than a modified transition from, say, light grey to dark grey. Hence the insistence of modern specialists on pastel shades in factory painting.

There is no one "best" shade. The amount, type and intensity of lighting, the shape and dimensions of the room, the nature and dimensions of the equipment installed, even the colour of the raw material being processed, must all be taken into account. A compromise must be reached between reflectivity and contrast. And account must be taken of what can only be described as colour illusion.

To most people, red, orange and brown are "warm" colours, blue and green "cool." Objects painted in the "warm" colours appear to advance, those in "cool" to recede. The whys and wherefores of these illusions may be left to the psychologists; they undoubtedly exist.

Until shortly after the war, for instance, Cadbury Bros., Ltd., used white and green for the decoration of their Bournville factory.

The effect, however, was felt to be rather "cold." When redecoration was carried out recently, a scheme incorporating "warmer" colours—reds, yellows and browns—was adopted.

In one of the manufacturing departments, the upper portion of the walls is now pale yellow with the window frames primrose yellow, giving the effect of sunshine even on a dull day. Floors and skirtings are buff, with the colour carried up the walls for about a foot because of a certain amount of splashing at various points. Central columns, smaller in area, are painted a cheerful pink, while doors are a dark blue-green.

The same principles have been applied to the decoration of their general offices. In a typical scheme, a large suite of offices has been brightened by having the columns and window frames on the darker side of the room painted peach and primrose yellow, respectively.

Some firms have gone farther in this direction, and painted the entire wall opposite to the windows in a brighter shade than the other walls. When Shell-Mex and B.P., Ltd. were re-decorating Shell-Mex House, they were faced

with a drawing office that was an awkward L-shape and that, because of its size, appeared low in proportion to its length. The treatment of the inside walls and columns in a rather bright pink offset these disadvantages. Other smaller offices were painted light blue on walls adjacent to windows and yellow on walls opposite, to even out daylight. Similar schemes are being introduced at other Shell-Mex and B.P. offices at Newcastle and Southampton.

An example of the use of colour to offset temperature conditions in the reverse direction is the Watford factory of Wild-Barfield Electric Furnaces, Ltd., built in 1940 but only recently painted. Here the process tends to be hot, and a certain amount of dust is generated. To offset these slightly unpleasant effects, the colours chosen are "cool"—cream, apple green, eau de nil, and silver grey.

Steel roof members, crane girders and overhead cranes are painted apple green or eau de nil. The considerable amount of steelwork is rendered less conspicuous, and blends into the background formed by the cream-distempored roof. The upper sections of walls and pillars are also cream, while the lower sections, up to 6 feet in height, are silver grey. The electric furnaces under construction on the shop floor are for the most part finished in aluminium, and thus match walls, doors and shutters.

Another scheme based on predominantly "cool" colours is that at Horlicks, Ltd., Slough. Cream is the dominant colour throughout the factory. In the vast vacuum pan room the walls and ceilings are cream, with door frames, skirting and all vapour pipes feedings the pans in green. Two rows of overhead ducting are painted white. Cream walls and ceilings are also adopted in the filling room, but here a green band has been provided some 3ft. 6in. from the floor. The upper portion of the overhead conveyor feeding the filling machines and all bench legs are a light blue. The combination

Continued over



The same plant after repainting. The harsh and distracting contrasts have disappeared, and even a black and white photograph gives an impression of restfulness and cleanliness.

(Photographer: William G. F. Brown and Co. Ltd., S.S.)

of cream, green and pale blue gives an air of coolness and cleanliness.

The firm's general offices are decorated on the same lines, though if a room is occupied by a single person, the occupant is allowed to choose the colours in which it is to be decorated, subject to approval by the managing director.

THE examples quoted so far have all been comparatively new buildings erected specifically for the purpose that they are now serving. *But where colour really comes into its own is in the treatment of old buildings which are not really suitable for the activities carried on in them.* It is amazing how clever colour treatment can appear to alter a room's shape.

Roofs of factories are always something of an architectural problem, even in new buildings. In old buildings the conglomeration of steelwork, pipes, electric conduits and so forth, absorbs much light and often has a distracting and oppressive effect.

The Paints Division of I.C.I. were faced with this problem in their paint shop at Slough. Paint mixers of a considerable height were installed in a comparatively low building and had to be served from a gallery, which was unpleasantly near the roof. The firm were unable to obtain a licence to raise the roof, but found an effective compromise by slight modifications to the roof trusses and by painting the roof itself and the girders that

carried it a pale green. This had the effect of adding at least 3ft. to the space between the gallery and the lights and, in addition, increased the amount of light.

The apparent dimensions of a room can be affected by the treatment of the walls. One firm with a very high factory removed the dwarfing effect by painting the walls in alternate horizontal bands about 2ft. in width in two different shades of green.

Low rooms, where the ceiling seems to press down on the occupants, can be made to look higher by emphasising vertical elements, such as columns, vertical piping, or, where these do not exist, by the use of vertical bands of a contrasting colour.



2. Colour in the foreground

Spotlighting the job increases output

1. Reduce contrast between machines and their background.
2. Accentuate contrast between the body of a machine, the working surface, and the raw material.
3. Accentuate key points—control levers, etc.—and possible sources of accidents, such as moving parts.

THE function of colour on factory surroundings is to diminish contrast between foreground and background. That of colour on machinery is to *intensify and concentrate the contrast at the working face*, so that the worker's attention is automatically focused on his job. The painting of machinery is thus not a mere aesthetic fad, but a severely practical aid to production.

In general, machinery falls into three zones, which must be treated differently.

First, there is the body or framework of the machine, which is essentially part of the background; its colour must blend with that of the wall against which it is seen, so that it does not distract the operator from his work.

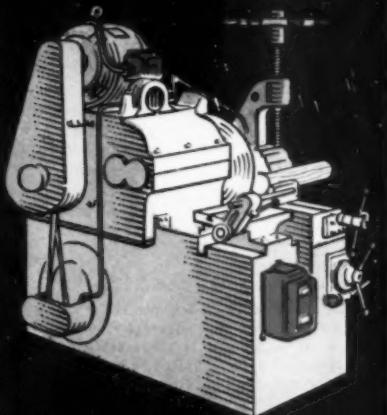
Second, there is the working surface, on which the worker's attention is concentrated; this must stand out sharply, but without glare, from the body of the machine and must be of a colour against which the tools and materials being worked also stand out.

Finally, there are the various hazards offered by the machine—moving parts, etc.—and such essential elements as controls and switchgear, which must be as visible as possible.

A typical example of this three-fold treatment is an engineering shop at Port Sunlight which was redecorated on experimental lines by Lever Bros., Port Sunlight, Ltd. The wall against which operatives faced as they stood at their mach-

ines was distempered light green, so that the machines themselves were painted a slightly deeper shade of green. The actual working areas of the machines were painted a stone colour, which gave a marked contrast both to the green of the background and to the sheen of the metal being worked.

While buff and green are generally suitable for most engineering shops, alternatives must be found in other industries, where the raw materials differ in colour. When Lever Bros., Port Sunlight, extended the colour scheme idea to their No. 4 Soapery, different colours had to be used in different sections; in one section, illustrated in a colour photograph on the cover of the October, 1950 issue of **BUSINESS**,



A typical colour treatment of a machine showing (a) subdued body tint, (b) contrasting working surface (c) high-lighted danger points.

the machines were engaged in cutting and packing a dark red soap, and to secure the maximum contrast they were painted blue.

Power presses at Vidor, Ltd., are bottle-green, to contrast with zinc. At Cadbury's, where the raw material is chocolate, the contrast is gained by the use of green and aluminium. At the shipbuilding yard of Alexander Stephen and Sons, Ltd., at Linthouse, the planing machines in the engineering shops are blue, green, fawn and pink, and those in the joinery shops salmon pink. The possibilities are legion; only the concrete case can determine the best combination.

THE use of vivid colours to give warning of possible hazards and thus prevent accidents has been illustrated in recent articles in *BUSINESS* on accident prevention. An outstanding example of this use was reported by Sir Charles Bartlett, managing director of Vauxhall Motors, Ltd., to the 1949 National Safety First Conference. The company had found that a large part of press shop accidents could be traced to the design of tools and dies.

The old and new—Remington banish harsh contrast and gloss.

MAY, 1951

The first step taken to reduce accidents was to paint some of the dangerous dies red; others which, though not dangerous, required watching, yellow; and those which were quite safe when normally operated, green. Before long every one was thoroughly alarmed about red dies, and that brought about a safety campaign in the press shop. It was possible to interest everybody, and during the next eight years, in spite of the fact that the presses were going practically day and night, *there was not a single press accident.*

Some ambiguity exists on the use of red, orange and yellow for controls and danger points. Some firms use red indiscriminately for any possible hazard. Others use red, orange and yellow for different purposes.

At Vidor, Ltd., machinery guards are painted red in the dirtier section, where carbon black is processed, and orange elsewhere, while electrical motors and their guards are painted red. At the Lever Bros. engineering shop, the electric "stop" control box is picked out in red, the inside of guards and fuse boxes and the hook and block of the travelling crane in orange. Orange is also used in a continuous strip under the live "pick up" wires along the wall.

At Wild Barfield's, the hook of the overhead electric crane is also painted orange, while the blades of fans for the unit heaters are painted red. At Cadbury's, on the



The new National Cash grey relieves eyestrain in the office.

other hand, red is restricted to fire-fighting equipment, orange being used to indicate hazards unconnected with fire; electrical equipment is painted blue.

One widespread practice is for the warning colour—orange or red—to be painted on the *inside* of machinery guards and switchboxes, the outside being painted the same shade as the walls or the bodies of machines. The warning is thus apparent when danger exists, but the distraction is avoided when machinery is in a safe condition.

A specialized type of hazard, where colour provides an identification rather than a warning, occurs where complicated systems of pipework occur. These pipes must on occasion be disconnected by repair and maintenance workers, often from outside firms unfamiliar with the factory layout. Loss of





YELLOW—Attention !

Use this colour to mark hazards, to avoid tripping or stumbling. Use on projections of machinery, low beams and stairway approaches.



ORANGE—Alert !

Use to mark parts of a machine that might cut, or crush, and on machinery guards. Use inside fusebox doors and on exposed parts of electrical equipment, pulleys and gears.



RED—Danger !

Use on fire extinguishers and fire-fighting equipment and fire alarms.



BLUE—Caution !

Use to mark machinery under repair or scaffolding which is not to be moved. Use as background to "Out of Commission" and "Do Not Touch" labels.



GREEN—Safety !

Use to identify first aid equipment and to show the location of first aid and rest rooms.



WHITE—Cleanliness !

Use white lines to indicate lanes to be kept clear for traffic. Use to show directions of one way traffic. Paint around litter bins, to encourage tidiness and on floor areas to be kept clean.

Colour for the colour blind

production and possible accidents might well result from the selection of the wrong pipe. Many firms now use coloured bands to differentiate between the contents of the various pipes. Since outside workers are involved, the case for some standardization of these code colours is obvious, and the British Standards Institution has sponsored a code that has secured wide adoption.

A special case arises where plant and equipment is so large that it takes up a major proportion of the space available in the factory. Such situations occur widely in the food, chemical and allied industries. Large tanks and vats, with their ancillary piping, form what is in fact a solid wall, and are treated as such from the point of view of colour.

Eight men in every hundred are colourblind. For them red offers no warning. To ensure that all workers shall be reached by colour's messages the British Colour Council has standardized these shapes in association with certain colours.

The Park Royal brewery of Arthur Guinness, Sons & Co., Ltd., was filled with plant and machinery of considerable size, finished in naval grey. The result was rather drab, and when repainting was carried out a new colour scheme was adopted. After a series of experiments, the roof and steelwork were painted eau de nil and all machinery cream. The result was an enhanced impression of light and a reduction in the "fussy" appearance of pipework.

INCREASED use of paint on machinery has led to the suggestion that machinery manufacturers should produce colour finishes on their products. In general, however, this is impracticable, since no single colour will fit into the requirements of every colour scheme.

With most small-scale machines, and particularly with office machinery, the position is a little different. Repainting by the user would be a tricky business, while mass production methods obviate painting such machines as typewriters and adding machines to suit individual customers' requirements. Under these circumstances, the office appliance industry has devoted considerable attention to switching over from the standard glossy black finish, general a few years ago, to more functional colours that will go with any reasonable colour scheme.

The office worker, coping continuously with the sharp and fatiguing contrast of white paper and black ink, is easily susceptible to eyestrain. As a result of research by colour engineers, the National Cash Register Co., Ltd., have recently introduced a new grey finish on all their machines which reduces operator fatigue. The new grey reflects 14.22 per cent. of light, or about four times as much as the old black finish, and has a gloss reading of only 1 to 3 per cent., against 7 to 8 per cent. for the best durable finish hitherto known. A number of typewriter firms have also swung over to grey, and one—British Typewriters, Ltd.—are now producing their *Empire Aristocrat* in a whole range of pastel shades.

Where to go for advice

Advice on the use of colour in industry can be obtained from :—

**FACTORY DEPARTMENT, MINISTRY OF LABOUR.
DEPARTMENT OF SCIENTIFIC & INDUSTRIAL RESEARCH.
BUILDING RESEARCH STATION, WATFORD.
BRITISH COLOUR COUNCIL.
COUNCIL OF INDUSTRIAL DESIGN.
ROYAL INSTITUTE OF BRITISH ARCHITECTS.
MEDICAL RESEARCH COUNCIL.**

Most of the big paint companies also maintain an advisory service which will give the businessman the detailed information that he wants.



3. Colour gives results

1. Productivity
2. Morale
3. Good Housekeeping

IN the last few years, many progressive firms have adopted the new ideas on functional colour in industry. Practically all of them have been satisfied with the results obtained, even though an exact assessment of these results is difficult.

Productivity

High productivity in industry depends on the interaction of many factors, including that undefinable but undeniable concept, morale. All the firms mentioned in this article are agreed that suitable colour has led to an improvement in morale, but what this contributes, in terms of output per man-hour, remains obscure. Repainting rarely takes place on its own, and other factors come into play.

At Wild-Barfield Electric Furnaces, Ltd., for instance, the company started a bonus scheme two years ago. In the first year of operation, bonuses averaged 12 per cent. In the second year, during which the factory was repainted, they rose steadily and by the end of the year had reached 40 per cent. The works manager, Mr. O. V. Metcalfe, is convinced that

there must be some connection between the two.

Mr. R. L. Wickens, general works manager of Horlicks, Ltd., also believes that the introduction of colour has increased productivity. As a typical instance, he quoted the case of three girls seated at a bench facing a wall painted white. The seats were turned round to give a better view and the lighting altered. The result was undoubtedly an increase in output.

Morale

Mr. Wickens, incidentally, also makes the point that, following the introduction of colour, complaints from workers seemed to drop. His experience was—and most works managers will endorse this—that when conditions are unsatisfactory, complaints are freely and promptly forthcoming.

Numerous cases have occurred in which only one department has been repainted in a factory, and a very general reaction in such cases is a flood of requests from workers in other departments to be transferred to the redecorated one, and a stubborn resistance on the

part of workers already there to be transferred out of it. This inevitably leads to an improvement in the status of the workers concerned which is reflected in pride in work.

Good Housekeeping

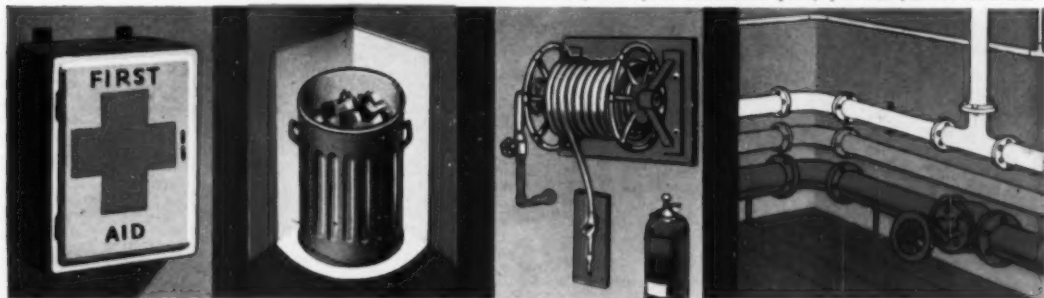
The immediate effect of using planned colour is an improvement in general cleanliness and tidiness. Speaking of the experimental engineering workshop at Port Sunlight, Mr. E. R. Scott, civil engineer to Lever Bros., Port Sunlight Ltd., says: "The immediate effect of the transformation was the noticeable improvement in 'good housekeeping' in the shop. The place was kept tidier and the men took more interest and pride in their machines, carefully removing greasy hand-marks which formerly would have remained on the black-painted machines as sticky dust collectors."

Other executives have confirmed this effect. The superintendent at a power station drew attention to the brilliant polish on panels which had been repainted and contrasted them with panels yet to be repainted and still in a dark colour, where the brasswork had received no more than a cursory flick of the polishing cloth.

These are but a few isolated examples of the way in which colour has contributed to the struggle for output. They could be multiplied from hundreds of other firms which, in the last year or two, have gone over to planned colour schemes. *In its functional aspect, colour in industry has come to stay.*

Four ways in which colour can be used for immediate identification in the factory.

Reproduced from "Colour Conscripton," published by British Paints Ltd.



He talked to his workers



... and output went up

By JOHN HESLINGTON

The old-fashioned businessman is sceptical of the value of 'pep' talks to workers by management. But Sir Claude Gibb, chairman and managing director of C. A. Parsons & Co. Ltd., has shown that backed by honesty and sincerity, putting the worker in the picture pays dividends in productivity that can be won by no other method.

IN October, 1945, Sir Claude Gibb returned to the works of C. A. Parsons & Co. Ltd., of Newcastle upon Tyne, makers of electrical power plant, transformers, scientific instruments and kindred apparatus, after an absence of five years spent on a war job. Shortly after, he was appointed chairman and managing director.

He had sensed a change in the general atmosphere of the works from that prevailing in pre-war days. He felt that this was largely due to the drafting into these works during the war period of men who had no roots in the place and who had not appreciated the long tradition of the company's family spirit.

The directors had planned considerable expansion and re-equipping, and it was necessary to let every man on the payroll know what those plans were and how they were to be affected by them.

It was felt that the cost of shutting the works down for approximately three-quarters of an hour—£1,500—would be worthwhile if everybody could be convinced of the advantages to them of the expansion and re-equipping which were to take place.

Sir Claude put his heart into the

talk that he gave to those 3,000-odd employees. He desperately wanted to kindle their enthusiasm and to win their support for the future development of the company and to convince them that the company would give them all a square deal.

He told them of the plans for the next five, ten and fifteen years, and of what new shops were to be built and what new equipment was going into both existing and the new shops. He pointed out the part that Parsons would play in the recovery of Britain by increasing exports that would pay for its food and raw materials and in the expansion of the electricity supply industry of Britain.

He gave every employee a personal pledge that not one single rate would be cut, regardless of the amount of their earnings, and in simple language explained why it was advantageous to the company and to all employees to earn as high a rate as they possibly could. He assured them that they would not work themselves out of a job.

For 22 minutes those workpeople listened to him in silence, a dead, dour silence. Sir Claude felt that his words went completely through them and that they were not being accepted as sincere. When he

finished, he felt almost in despair. Yet half-an-hour after normal knocking off time it was found that about 1,500 men still were in the works standing around in small groups discussing the talk they had just heard.

Within a week or so of that talk, earnings had begun to rise and in certain shops the rise was quite spectacular. For several years, average earnings in the different shops had been round about 30 per cent. above the basic rate, except for short-lived crisis stimuli such as Dunkirk and D-Day.

The graph reproduced shows how, in one particular department employing men and women, the rise took place. Although it is more striking than the average over the whole works, it is an indication of what can be done by changing the mental approach to work rather than by changing technique or equipment.

The incident has a significance beyond its importance as a turning point in the history of this one great company. It proves a disputed point of productivity strategy and may, thinks Sir Claude, show the way to a solution of the nation's difficulties that is more timely to-day even than it was five

years ago. It proves that production can be increased substantially and almost instantaneously by greater effort on the part of labour and that this greater effort can be secured by a sincere, intelligent appeal by a trusted management. "How many of the nation's economic and social problems would remain if it were possible to obtain over all industry an increase in output of something of the order of 50 per cent. with a corresponding increase in employees' earnings, no increased investment in plant and no danger of inflation?" he asks.

The most striking feature of the graph reproduced is the steep rise in earnings after the talk to the work people, a rise directly reflected in increased output because almost the whole labour force is paid by results. It will be seen that earnings levelled out at a much higher level for something like twelve months with a tendency towards decline. This would be explained by some authorities as the inevitable reaction after a burst of effort and as proving the impermanence and unreliability of exhortation as a factor in labour

effort. This is not how it was regarded by the Parsons' management. The higher output attained was so large and unexpected that supplies of raw materials at that time could not be increased proportionately.

While the purchasing department was rectifying this, the reason for the running out of certain materials was explained to the workpeople concerned and also the measures that were being taken to improve conditions.

Production again rose and again showed signs of levelling out. A talk with certain individual workmen very quickly spread throughout the rest of the shops, and again there was an increase in output. The fact that the curve over the past two or three years has fluctuated is inevitable in any factory where there is a wide variety of articles to be produced with variations in the basic contract prices which, in almost every case, have been established over a number of years.

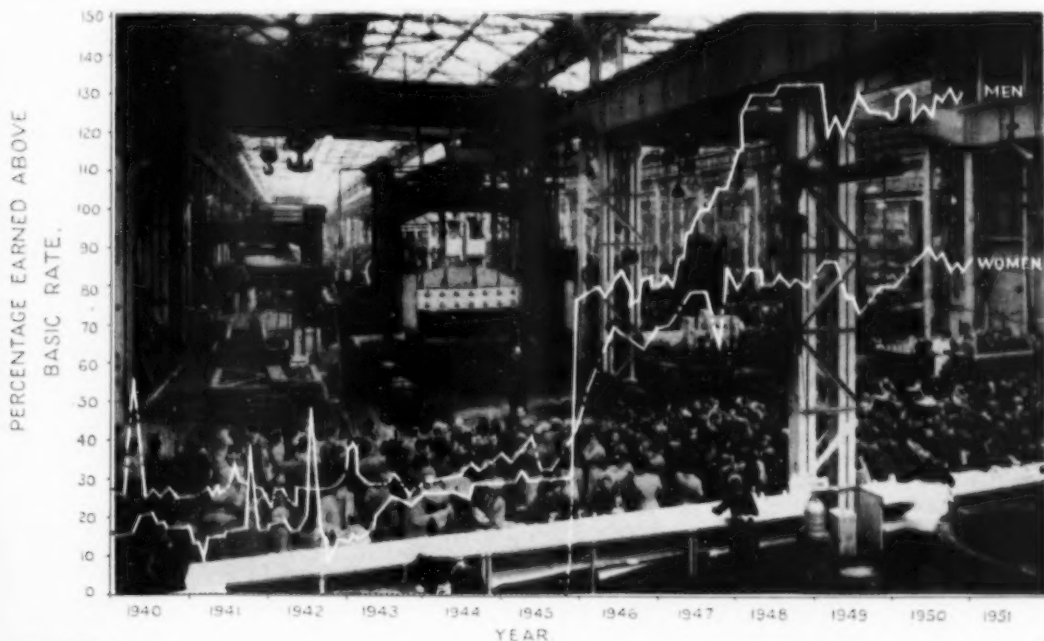
The result of Sir Claude's policy of establishing confidence between management and workpeople over the past five years means that

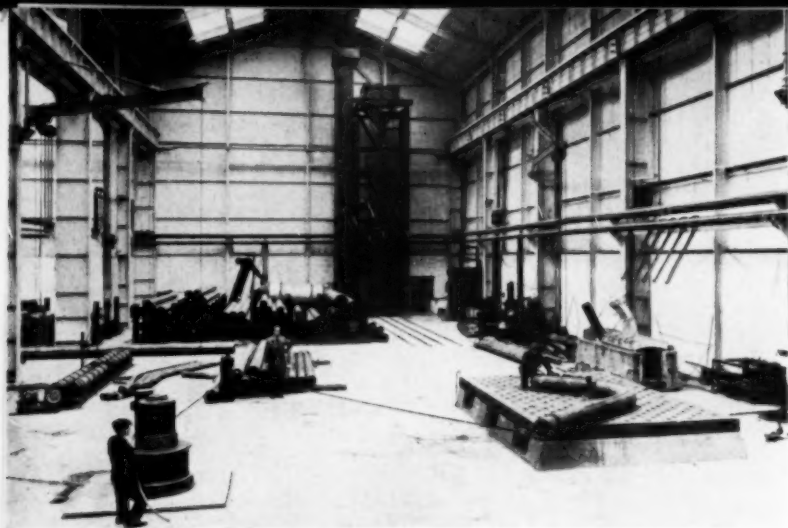
Parsons employees, now numbering over 5,000, are earning far more above the basic rate than ever before and the company are getting a great increase in output with lower overhead charges than previously ruled.

Establishing confidence in management is a vague and woolly phrase. Not many managements of companies with 5,000 employees would interpret it as simply and as personally as Sir Claude Gibb. He believes that no chief executive can depute labour relationships to a functionary.

He is quite convinced that it is not possible to run a factory in the provinces efficiently from a panelled office in London. He told me that he is often told that he handles too much detail and that he should sit back with a clear desk dictating policy. "I've never understood how to dictate policy without a knowledge of detail" are his own words.

In gaining the confidence of Parsons' employees he started, no doubt, with an advantage, for he had risen from the ranks. Abandoning an Australian University post after the 1914-18 war, in which he





Productivity is not only a matter of good labour relations; management must assist by mechanization. New machinery in this pipe bending shop at Heaton reduced the time taken to fill up with sand from fourteen hours to one.

served as a Flying Corps pilot. Claude Gibb took a job as a fitter at the Heaton works, subsequently spending a year in the drawing office. He graduated by way of minor jobs in charge of outside erection work to be assistant to the managing director, and in 1929 to be technical director.

He was general manager of the company when he was summoned to the Ministry of Supply to hold a sequence of posts related to the organization of munitions supply. When he returned to the works and became chairman of the company, many of the old hands recalled that in the bitter days of unemployment on Tyneside, Gibb's advocacy with the board had enabled the company to develop new lines of production suited to their existing equipment so that very few Parsons men had to be paid off.

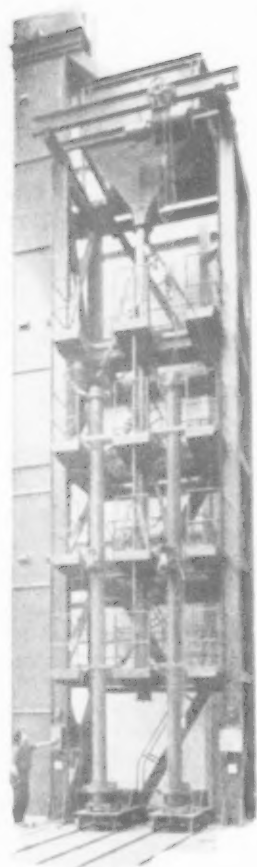
One can make too much, however, of any advantage Sir Claude may enjoy in his dealings with workpeople from having been "one of them." Authority at Heaton works is not watered down with any bogus democracy. Management is management and the Tynesiders in the works have their code of propriety; they like the chairman to recognise their individuality by addressing them as Geordie or Bill, but no one has yet

had the hardihood to respond by calling him Claude.

Workmen's trust in the Parsons management rests also upon the chief executive's deliberate aloofness; he does not take the view that discipline demands that managers should always rely upon top management's backing in disputes. "When I take the chair at shop stewards' negotiating meetings, I am completely and absolutely impartial," said Sir Claude. "Whenever there is any conflict of opinion, I try to look at the matter through the eyes of the employee. Four or five years ago my decisions were sometimes given against management. If the proportion of those decisions is smaller nowadays, that is because looking at these problems through the workman's eyes has gone down the line."

When, therefore, the chairman promised that no rate would be cut if output and earnings increased, unless there had been a marked change in technique or in the equipment used and in that event savings would be shared with the employee concerned, everybody knew that that pledge was given in good faith. It remained to be proved whether the management had the ability to provide the materials, to organize the work and to sell the product.

No firm producing electrical



A close-up of the pipe filling tower.

generating plant in the last five years has had the slightest difficulty in selling its output, but supply problems and work organization have defeated many a company not less resolved than Parsons to play straight with its workers.

"Welfare" is not, at the Heaton works, a bribe, or a calculated investment in goodwill. When Parsons claim, as they are entitled to do, that working conditions in their factory are five years ahead of the standard in most other engineering works, they mean that they have enormously improved the conditions for working, not the amenities unrelated to work. They have made work less arduous, more

pleasant and more lucrative for the workers by making it more efficient and more profitable for the company. Since the war £3,000,000 has been spent on re-equipment, reconstruction and decoration. The expenditure on decoration was as much an investment in efficiency as the purchase of the compressed air clamps installed all over the factory to save unnecessary handling.

Sound links between home and factory are forged by occasional at-homes in the works on Saturday afternoons during the summer. Wives and children come along to see how Dad is handling the export drive, the operations and machinery are explained and the chairman makes a short speech over the loudspeaker system. Five thousand turned up to one of these gatherings.

A good deal more could be said about the methods Parsons use to develop good relationships with employees—for example, about how they "sell" the company to primary and secondary schools and have in consequence a waiting list from which to pick the 140 apprentices recruited every year; about the school in the toolroom equipped with replicas of the best machines in the shops; about the system of placarding work in progress so that every man working on every

part of it knows that he is contributing to this turbo-generator for Venezuela, or that condensing plant that will help to pay for Australian meat.

Ideas like these help to create a spirit in the works that is reflected in an inconsiderable labour turnover and a weekly rate of voluntary absenteeism (including illness periods of up to three days) as low as 1.6 per cent.

Good relations with labour have been the chief factor in the company's post-war success, and they have been the essential foundation for the programme of expansion and re-equipment. To buy more efficient machinery when employees are disaffected is, in Sir Claude's opinion, to invest in disappointment; you will not get the higher output for which the new machinery is rated—you will not get even as much output as your old machinery would have turned out if it had been manned by enthusiastic workers—because the employees will not get the best out of the machinery.

Assured of this indispensable co-operation, Parsons launched a large scheme of capital investment. New shops are still rising on the 43-acre site of the works. Parsons undertake a good deal of the site preparation and erection themselves, and an observer will notice that, diverging from general practice, they make up the reinforced concrete floors and approaches before completing the superstructure, arguing that a site rarely has to bear such stresses as those to which

it is subjected while the building is under construction.

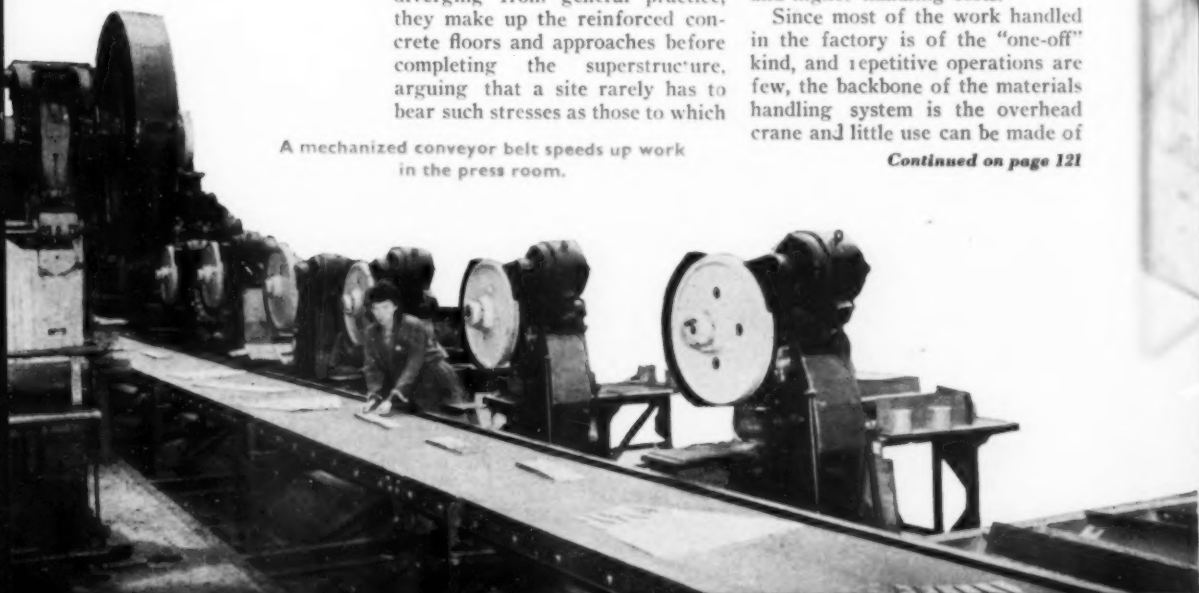
In the shops already operating, the loftiness of the structures and the absence of pillars can easily conceal from notice the fact that the machines are thick on the ground. In an address in February to the Manchester Association of Engineers, Sir Claude gave a reasoned justification for refusing to follow the fashionable policy of surrounding each machine with a liberal amount of space.

"For light industry," he said, "the cost per square foot of floor space, including roads and services, may be as low as £2. Where very heavy equipment has to be handled, involving the use of cranes with lifting capacities of up to 200 tons, the figure may be as high as £7. It is not generally realised that the cost of even a single gangway down the centre of one bay may amount to several thousand pounds. The cost of floor space to install an average-size radial drill costing perhaps £1,200 may amount to £2,000 or even more." Another consideration is that if there is a surplus of floor space it will inevitably be filled up with material stored between operations, and that in itself means that the volume of work in flow for a given output will be higher than necessary, with more money tied up in work in progress and higher handling costs.

Since most of the work handled in the factory is of the "one-off" kind, and repetitive operations are few, the backbone of the materials handling system is the overhead crane and little use can be made of

A mechanized conveyor belt speeds up work in the press room.

Continued on page 121



FESTIVAL LOOKOUT



UNIT CONSTRUCTION DESK

Designated UPL48, this well proportioned all-metal desk by Ronco Ltd. is one of many designs made from a range of basic components. The company's development and technical committees designed it.



PARTS INTERCHANGEABLE

Nearly 2,400 parts are contained in the handsome model 60 standard typewriter by Imperial Typewriters Ltd. Keynote of this design is the interchangeability of components. This machine was first produced in 1949.



EFFICIENT OPENER

After 28 years of experience in the development of mailroom equipment, Block & Anderson Ltd. designed and produced the Bandmail 500 letter opener in 1947.



DESIGNED FOR ADDING

Portability and simplicity are strong points of the well-known Plus adding machine. The Plus is available in both sterling and decimal versions and is made by Sumlock Ltd.



Already familiar to many readers through descriptions appearing in past issues of **BUSINESS** is this selection of office equipment, which will be displayed or in use at the Festival of Britain.



NEAT NUMBERER

Designed in 1948 by Allen Bowden Ltd., and first produced in 1949 by English Numbering Machines Ltd., this automatic numberer makes use of Mazac die castings and steel components.



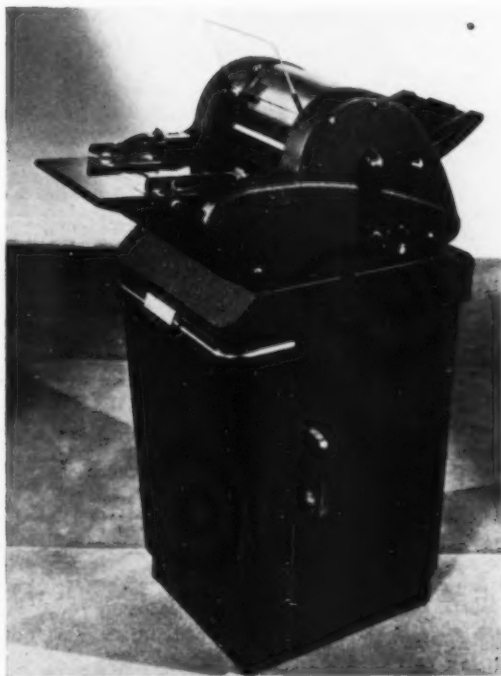
CHAIR FOR TO-DAY

The KJI chair, by Leabank Chairs Ltd. Introduced in 1949, this model is fully adjustable and the frame makes use of both steel and die cast alloys.



FUNCTIONAL ELEGANCE

This loud speaking master station can be connected to 22 other instruments. Well proportioned and finished, it is produced by Dictograph Telephones Ltd., and was designed by their own staff.



THE RIGHT SPIRIT

This Banda 90 spirit duplicator, is silent and smooth in operation. Like the Bandamail 500, it was designed by Block & Anderson's staff.



How 100 firms cut down manpower wastage from accidents

By PHILIP F. DYER

IN the March issue, *BUSINESS* showed how progressive firms were actively preventing accidents in their factories. In spite of the most stringent precautions, however, accidents cannot be wholly avoided, with their inevitable result of pain and financial loss.

To-day some 500,000 accidents occur each year, involving a monetary loss from manpower wastage of over £70,000,000 a year. This figure can be cut, and is being cut by a few farsighted firms. Thanks to modern after-care methods, injured workers can now be healed and brought back into production in a fraction of the time that, even a few years ago, was thought impossible.

Based largely on experience with war casualties, these methods have proved equally effective in dealing with injured workers. At Luton, for instance, two rehabilitation centres have been developed since 1945, one through the co-operation of nearly 100 different firms, the other as an integral part of one large concern.

The two centres sprang from the same inspiration, cover much the same ground, and co-operate closely with each other. They share the same orthopaedic and plastic surgeons, and most of the patients at both centres pass through the same hospital for initial surgical treatment.

Back in 1932, a number of firms were concerned at the inadequate

local facilities for handling industrial injuries. Only a cottage hospital, without casualty ward, fracture clinic or radiotherapy centre, was available. The executives of the Davis Gas Stove Co., Ltd., called a meeting of other industrial leaders interested, and, as a result, the Luton and District Industrial Safety Association was born.

There were initially only 24 member firms. But the association expanded rapidly, and to-day there are 98 of all sizes and from all industries, drawn from a radius of 25 miles from Luton.

When the association was formed, plans were already ahead for a new voluntary hospital, the Luton and Dunstable. The association strongly supported the committee responsible; employers and workers raised over £14,500 and an additional £2,500 was given by member firms.

This practical assistance gave some weight to the association's recommendation that a fracture clinic should be included and that a fully qualified orthopaedic surgeon should be in charge of it. This was done.

Next came the formation of an Institute of Ray Therapy in Luton, for which £700 was raised. An employers' contributory scheme

A Perspex splint enables this worker with a wrist injury (above) to maintain his output.



This article in
ONE MINUTE

Industrial rehabilitation is today drastically cutting manpower wastage from accidents by getting badly injured workers back to their machines in a matter of days.

The use of new types of splints and special attachments to standard machines means that a man with, for instance, a fractured ankle, can return to work within a few hours instead of the three weeks or more hitherto required.

Lost output is thus being cut to the bone, while the remedial exercises inherent in operating the machines accelerate final recovery.

In Luton and Dunstable and the formation of a branch of the Hospital Savings Association in Luton ensured that employees of member firms of the association could obtain the benefits of the new treatment under the best financial conditions.

But many man-hours were still being lost during long periods of

recovery. Orthodox surgical treatment immobilized fractured limbs for weeks at a time, so that when plaster was finally removed muscles were wasted. Workers, being human, neglected the remedial exercises prescribed for injured limbs.

The next stage was therefore the establishment of a rehabilitation centre under the orthopaedic surgeon in charge of the fracture clinic. Here, injured workers who have completed surgical treatment can resume their normal work on machines adjusted to their requirements.

Ingenious foot-propelled treadle drives and specially designed hand grips enable the injured man to operate the machine with just those movements which the surgeon deems necessary to complete the cure. Remedial exercise thus becomes automatic and independent of the patient's willpower. It is, moreover, advantageous, since it enables him to earn his living, notwithstanding his injury. The psychological reaction of this independence, coupled with the familiar surroundings of factory life, keeps up morale and hastens recovery.

The association contributed over £4,000 to the initial cost of the centre. Individual firms gave standard machines such as small presses, drills and lathes. Work to be done on the machines was also provided and paid for at standard piece-rates by individual firms. To-day, the centre is administered



Adjustable remedial equipment attached to a drilling machine. Warm air is blown constantly on to the injured wrist of the operator.

under the National Health Service; all patients receive sick benefit, plus up to £1 from their earnings, the balance going to provide amenities for the hospital patients, and to extend the work of the centre.

Meanwhile, Vauxhall Motors Ltd., one of the leading members of the association, opened a rehabilitation and re-training centre of their own. This operates on

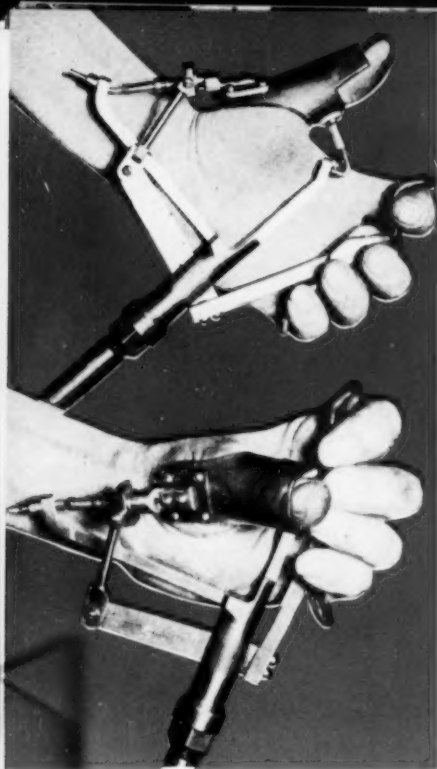
similar lines to the hospital centre, and co-operates closely with it.

The Vauxhall centre, however, works as an integral part of the Vauxhall production line; its output is scheduled, and all parts turned out eventually find their way into a Vauxhall car or a Bedford lorry. Patients are paid their average weekly earnings during the period immediately before their injury. Flexibility and continuity of operations are thus ensured.

Many of the workers in the centre at any time are, in the nature of things, skilled toolroom engineers, and can thus be used—and are used—in the design and construction of special machine tools for operation by temporarily disabled workers. Many of these tools have been copied by firms and medical authorities in this and other countries.

Indeed, the work of the centres Pipe bending and bar bending operations give exercises to the hand, arm and back muscles respectively.





A remedial appliance designed and manufactured in the Vauxhall retraining shop to develop the thumb muscles.

has already led to modifications in surgical practice. A fracture of the lower bones of the leg, for instance, normally involved the casting of the entire limb in plaster, to prevent a rotating movement at the knee joint. As a result of work at the Vauxhall centre, a special metal splint was evolved with a hinge at the knee that stopped rotating movement but allowed normal flexion. Thus a man with a fracture of the lower leg may now walk and even ride a bicycle within a few hours of the limb being set. A special boot has also been devised to enable a man with a leg in plaster to walk comfortably.

This combination of improved methods of treatment with the remedial exercise involved in the operation of machines has had remarkable results.

"About 50 per cent. of our cases of fractured big toes lose no time at all," says Mr. H. E. Phillips,

safety engineer at Vauxhalls. "Of the remainder, an average of $3\frac{1}{2}$ days is lost, compared with about $24\frac{1}{2}$ days lost with normal treatment outside the factory. With fractured ankles, something like 80 per cent. of our cases go direct into the re-training shop, and the remainder lose only an average of $1\frac{1}{2}$ days before returning to alternative work. The comparable figure for outside treatment alone is an average loss of $22\frac{1}{2}$ days.

"Tenosynovitis of the wrist now causes us no loss of time at all, since 100 per cent. of cases resume work with the appropriate piece of equipment. Acute sepsis, which used to cause us an average of 21 days lost time, now, with surgical treatment and selected work, costs us an average of only two days lost. Many other cases could be quoted."

Similar results are being obtained at the hospital centre.

Both centres now stand sturdily on their own feet, and though member-firms maintain close contact, the pioneer phase is over. The activities of the association are now concentrated primarily on the prevention of accidents.

These activities include study groups, meetings, lectures, the sponsorship of ambulance competitions, and the maintenance of joint safety records.

Of these by far the most important are the monthly study groups. Member firms act in turn

as host, inviting their members to tour their factory. There is no limitation on the number of people that a firm may send; some send one, others include members of their works safety committee. A few, such as John Dickinson and Co., Ltd., of Hemel Hempstead, and Vauxhall Motors Ltd., regularly send a special coach with a party.

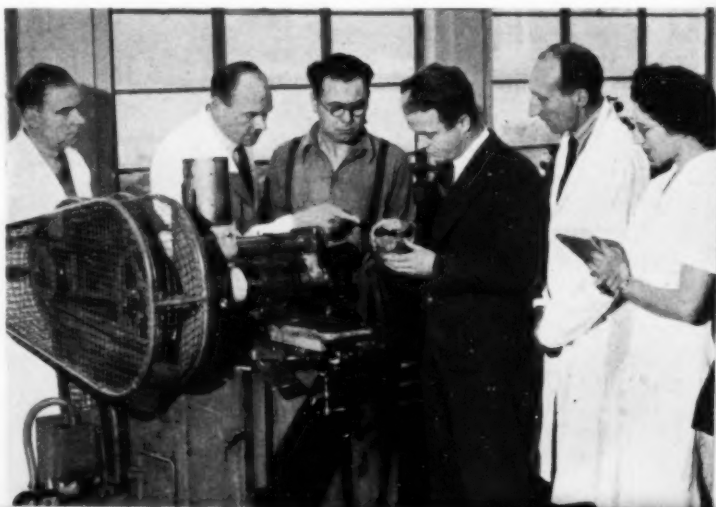
In 1949-50, the average study group consisted of 54 people from 24 firms; in all, some 45 firms sent representatives to one or more study groups during the period.

Visitors are welcomed by an executive of the host firm and given a brief description of the safety organization. The party are conducted round the works, and the manufacturing process, together with its peculiar hazards, is explained. Over tea, discussion takes place on the safety arrangements inspected. Constructive criticism is the keynote of such discussion.

These study groups have three results. First, the host firm naturally overhaul their safety organization before the visit. Secondly, the discussion reveals any shortcomings which still remain. Thirdly, the visitors see in action new methods of solving safety problems in their own works.

A formal lecture by an expert in some aspect of safety work follows in the evening. This is also attended by local people who may have missed the study group.

The orthopaedic surgeon and other officers examine the progress of a patient. All the photographs are by courtesy of Vauxhall Motors Ltd.



MANAGEMENT AT WORK

If You Can Cost . . .

A COST-CONSCIOUS executive is Major Denis Thatcher, managing director of the Atlas Preservative Co., Ltd. Winding up an address to the London section of the Oil and Colour Chemists' Association on "Accounting for the Paint Industry," he quoted his own parody of Kipling's *Rewards and Fairies*:

"If you know Indirect from Direct Wages,
And from your records hand-ling losses tell;
If you can allocate expenses by their stages,
And thus recover overheads as well;
If you can cost each manufac-turing minute,
With all the work that men and plant have done;
Then industry is yours and all that's with it,
And what is more, you've done a job, my son."

Mind Your Boots

THE managing director of a small South London engineering works was recently faced with a knotty problem. The company had just moved into a brand new factory, and the offices had been fitted out with parquet flooring and pleasant Indian rugs.

The M.D., however, also acted as his own works manager, and there was consequently a constant stream of foremen, charge hands and inspectors coming in and out of his office. They brought with them not only their queries, but regular traces of cutting oil, picked up on their boots from the floor of the workshop. This, of course, played havoc with the nice new parquet floor.

The problem was solved by putting up a shelf adjacent to the door connecting workshop and

offices. On this are kept a range of goloshes of various sizes. Now, whenever any one from the workshop wishes to visit the office (or *vice-versa*) he must slip on a pair of goloshes over his oil-stained shoes or boots. And the parquet floor retains its pristine sheen.

Handling a Major Redundancy Problem

WHEN the Clydesdale Bank and the North of Scotland Bank were amalgamated recently, a serious staff redundancy was produced. The management of the joint concern found themselves with many able employees between the ages of 36 and 46 for whom no adequate future could be seen within the consolidated institution.

In this situation, the management decided to offer eligible men cash payments ranging from £3,500 at 36 to a maximum of £5,500 at 46. These payments are tax-free—an important consideration.

In addition, the bank published advertisements in the Scottish press, offering to put prospective employers in touch with suitable men. The response was excellent,

and a considerable number of bank employees have been placed in good jobs outside. Others have used the handsome severance allowance to set up their own businesses. Many have turned to farming.

The scheme is completely voluntary, and no pressure is applied to any individual to accept it. Prior to its public announcement, the plan was submitted to representatives of the bank's staff association, and won their enthusiastic support. Apart from the direct assistance to men leaving, it meant that chances of promotion for younger men in the organization were enhanced. The plan is still in force, but will be withdrawn as soon as the management are satisfied that a proper adjustment in their staff has been made.

Running Their Own Training Scheme

QUITE a number of organizations now run staff training courses at a residential centre. Few have gone quite so far as another Scottish bank—the Commercial Bank of Scotland, Ltd.—which gives groups of twenty clerks from the 25-35 age group a 4½ months' residential course in Ramsay Lodge, a historic mansion in Edinburgh that the bank bought for the purpose.

The unique aspect of the scheme is that, during their residence, the

The lounge at Ramsay Lodge, where junior officials of the Commercial Bank of Scotland Ltd. go through a residential training course.



HE DESIGNED HIS OWN DESK



Allen B. Gellman, president of the Elgin American Company, famous watchmakers, had his own ideas on what a desk should be—so he designed his own. When conferring with associates his desk is clear.



works out at less than a guinea a day a head.

Enrolling the Aged Office Boy

TOO old at forty" is not an adage that commends itself to Mr. W. S. Shirra, divisional director of Rowe Bros. & Co., Ltd., Birmingham builders' merchants. He has just engaged a new office "boy"—of 68.

The new "boy," Mr. Harry Holmes, retired from the railway ten years ago, after 44 years' service, during which he rose from knocker-up to stationmaster at Walsall. To-day he is happily engaged in dealing with outgoing mail and central filing in Rowe Bros.' offices.

According to Mr. Shirra, his company have adopted the policy of offering employment to older men wherever possible. "A lot of pensioners must be having a very hard time now," he explains. "Many of them, I am sure, would be glad of an opportunity of doing a useful job and supplementing their incomes. This isn't a purely altruistic attitude on our part, though, for reliable juniors are not easy to find now. Older people who have been through the business mill once have a sense of responsibility that can hardly be expected in youngsters."

Telling the Workers

LATEST convert to the call for a brighter annual company reports is Mr. H. W. Bosworth, A.M.I.E.E., chairman of Lancashire Dynamo Holdings, Ltd. The 1950 report, titled boldly, "Annual Report to Shareholders and Employees" gives considerably more information about the company and their activities than is usual, and is illustrated with photographs of the company's factories and their products. An interesting graph shows the trend in prices, both of raw materials and finished product, wages and dividends over the last ten years.



Working alone on his correspondence, he presses a button and the front section rises, revealing pigeonholes for the sorted mail and business papers.



Sliding back panels from in front of the pigeon-holes, his secretary clears the sorted papers without having to disturb him.

A battery of telephones are tucked out of the way until they are needed. A simple swivel action brings them to hand.

trainees are completely self-governing. Apart from the housekeeper and her domestic staff, there is no residential official. Each course forms its own Residents' Committee, with duly elected chairman and office bearers, and each trainee has an opportunity to serve on the committee. Within the framework of a broad constitution and training policy, the residents have full scope to organize their own welfare; it is they who run the library, work out social activities, entertain lecturers, and other visitors to the informal evening lectures, and so on. These evening lectures are limited to two days a week; for major training, the clerks are attached to one of the larger Edinburgh branches or to the head office of the bank.

In between these long courses, short 14 day courses are run for senior men.

According to Mr. Letham, head office manager, who described the scheme to a recent meeting of the British Institute of Management, the total cost, including training,

This office reorganization broke a paperwork bottleneck

By JULIAN ACOMB

A FINE example of the contribution an efficient office can make to factory production is provided by the stores control office of Igranic Electric Co., Ltd., of Bedford, makers of a wide range of control gear from small switches to complex panels. Until recently, maintenance and control of stores constituted a bottleneck in this firm's production. To-day the problem is solved.

The problem was a major one. Mass or even batch production methods cannot be used by this firm, and three main groups of stores are needed; some 500 types of standard units for control panels; 30,000 to 40,000 parts and minor sub-assemblies for the manufacture of these panels; and raw materials for the manufacture of these parts.

Under the old régime, stores control, on receiving orders from production control to allocate materials for a job, started a folder and passed it to one of 19 appropriators. He entered the description of the assemblies and parts necessary for the job. But in many cases the drawings only gave the number of a sub-assembly required and he had to find the further drawings relating to it.

He then looked out the stock control cards for each item and inserted them in the folder. These cards were kept in an index cabinet at the end of the office. Since any one part or sub-assembly might be contained in four or five jobs passing through the office at the same time, some cards were often missing. Delay resulted. The output of the office was restricted to an average of four folders a day, whereas for full factory pro-



This article in
ONE MINUTE

1. PROBLEM: Expanding output at Igranic Electric Co., Ltd., demanded a greater volume of paperwork for production control purposes. This proved impossible, as documents extracted from the files were "lost" once they had been requisitioned until completion of the folder into which they were inserted.

2. SOLUTION: Training Within Industry methods were applied, and a step-by-step analysis of procedure carried out. The institution of an extra carbon copy as a 'master' eliminated all need for reference to drawings. Index cards were decentralized, each clerk being given a section for which he was responsible. Folders were passed from hand to hand on a production line system, details being filled in as they proceeded.

3. RESULT: The bottleneck was broken. Output of completed sets of forms doubled while the smoother flow of work enabled clerks to be transferred to other departments. Paperwork keeps step with production, while £1,500 a year has been saved in wages.

duction at least five completed assembly folders were necessary.

Since the determining factor was that of finding missing cards, an increase in the number of appropriators was no solution. The management therefore decided to see whether Training Within In-

dustry methods, recently introduced in the factory, would yield equally successful results in the stores control office.

Three executives were appointed in October, 1950, to apply job methods and job instruction in the office. The team consisted of Mr. F. W. Pridmore, then works manager, Mr. A. C. Jones, assistant production controller, and Mr. V. Work, chief of department, stores office. All three had been through a T.W.I. course given by the company's education officer, a former T.W.I. instructor with the Ministry of Labour and National Service.

The team first applied job methods to one requisition folder. Each operator who handled it was asked what he or she did. Four other interested departments were asked what their requirements were.

This was a long job and after completing 17 sheets of analysis and suggestions, the team decided that further analysis was useless. Two major defects were revealed—the necessity for copying on each folder the full details of every part involved, and the time wasted in seeking missing drawings and cards. Some 35 per cent. of the appropriators' time was taken in such searches. Radical changes were needed.

The principle adopted was to *bring the work to the appropriator rather than have the appropriator go to the work*. To this end, the office layout was substantially changed, desks being placed in a line end to end and work arranged to pass in a continuous flow from one end of the office to the other. Index cards were split up, each

appropriator being given sole charge of, and responsibility for, approximately one fifth of the total.

Under the new system, an instruction from production control is at once entered in a loose-leaf register, and a budgeted date for completion of the folder entered by the head of the department, who can thus check how far the office as a whole is up to schedule on its work. Progress of the folder through the office is also noted in this register, so that the whereabouts of any piece of paper at any time can be rapidly and accurately ascertained.

A central clerk prepares a folder for each new job and clips into a stores office master. This master is an extra carbon copy taken when that particular job last passed through the office and made with truncated sheet of carbon paper, so that only the description, part number and bin location were copied, the other columns remaining blank. This simple expedient eliminates any reference to drawings. It saves all the time pre-

viously occupied in searching for, and copying from, the drawings.

The folder is then endorsed on the outside with the budgeted date of completion and placed in the "in" tray of the first appropriator *in order of priority*.

These trays were specially constructed. They hold not only the folders in transit, but also stocks of stationery required by the operator. They also have a space at the base for use as an "out" tray for the despatch to other departments of documents not retained in the folder.

The initial survey had revealed that much time was wasted by operators walking to and from their desk to the single "out" tray at the end of the room, and even in going to other departments with documents that might well have been transferred through the routine messenger service. The new individual "out" trays have eliminated practically all this movement. They are cleared every hour by the central clerk, who either places the documents in the appropriate office "out" tray or arranges for their

immediate despatch.

On taking the folder from his "in" tray the first appropriator enters on the master the part numbers falling within his own section of the cards, and makes the corresponding adjustment on the cards. All allocations are made on paper, the bin card acting purely as an emergency check on impending shortages.

He then puts the folder in his "out" tray, which is also the "in" tray of the second appropriator. The latter, in turn, works through those part numbers which fall within his own section of cards and passes it to the third appropriator. Finally the folder goes to the first of two layout clerks, who make out production orders from the details on the master and write up manufacturing operations on the reverse side.

This was originally done on two separate forms supplied by different printers. They did not line up, so that carbon paper could not be used accurately. Now a triplicate set of forms is used, consisting of a top sheet of paper with carbon backing, a middle card, and a bottom sheet of paper. The card, which contains machine instructions, is filled in on both sides and so cannot be carbon backed. A sheet of carbon paper is therefore interleaved between the cardboard and the second sheet of paper. As this is only used once, it is detached immediately the copy has been made and put on one side for subsequent use in another department, whose forms have been designed to enable it to be used again.

Machine instructions on the card used to be written in full but are now indicated solely by a two-letter code. This has greatly reduced clerical work in preparing the card.

From the second layout clerk the folder passes to the first of two raw material clerks, who calculate the material required. Finally a typist makes a fair copy of the master, with carbons for the departments concerned and an extra carbon for the stores control office

Eight Points for Management

- 1. Study existing methods, breaking the process down into unit elements.**
- 2. Reorganize methods and office layout to give steady flow of work from one end to the other.**
- 3. Take work to the operator rather than make the operator go to the work.**
- 4. Integrate office routine with requirements of other departments.**
- 5. Re-design forms, where necessary, and use contractions where possible, to eliminate copying.**
- 6. Consult staff on all changes to secure co-operation, constructive criticism and suggestions.**
- 7. Lay down on paper a schedule of duties and responsibilities of each type of worker.**
- 8. Decentralize work of office to relieve seniors of routine jobs.**



A general view of the stores control office of the Igranic Electric Co. Ltd., after reorganization. Paperwork now flows in a steady stream from front to rear, while the enquiries desk handles all outside contacts.

file for use as a master when an order for that item is received.

The appropriators, incidentally, initiate orders for bought out materials.

Completed folders go to the central clerk, who prepares route tags, and distributes the production orders and the material sheets.

Consulting the Workers

Before this system was put into operation, a breakdown sheet was constructed for each job, detailing the progress of a folder from receipt to final despatch. At meetings between the team and office workers the suggested procedure was outlined, criticisms and suggestions invited, and valuable amendments made as a result. When the procedure had been finalized, a further set of sheets was prepared, setting out in detail the duties and responsibilities of each class of operator in the office, from the head of the department down to the most junior clerk. These job descriptions cannot now be altered without the signature of a director.

One significant staff suggestion adopted was the provision of a clock. Many operators wanted to apply their own rough and ready time study to their own work and so check themselves against the target fixed for them. Another innovation is the provision by the management of a ball-point pen for each worker; pencils are no longer used.

The two lay-out clerks have been provided with slide rules and are being instructed in their use by T.W.I. methods.

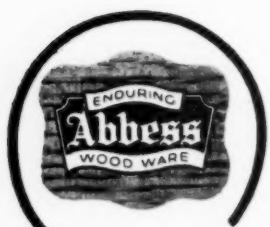
Another innovation that has saved much time, not only of all operators but in particular of the head of the department, has been the establishment of an enquiries desk. Previously, inquiries from the head of an outside department were put to the head of stores control, who had to leave his own work to investigate what was usually a matter for a less senior officer. Other outside personnel were constantly worrying office clerks, often interrupting several before finding the right one.

Now one man has been charged

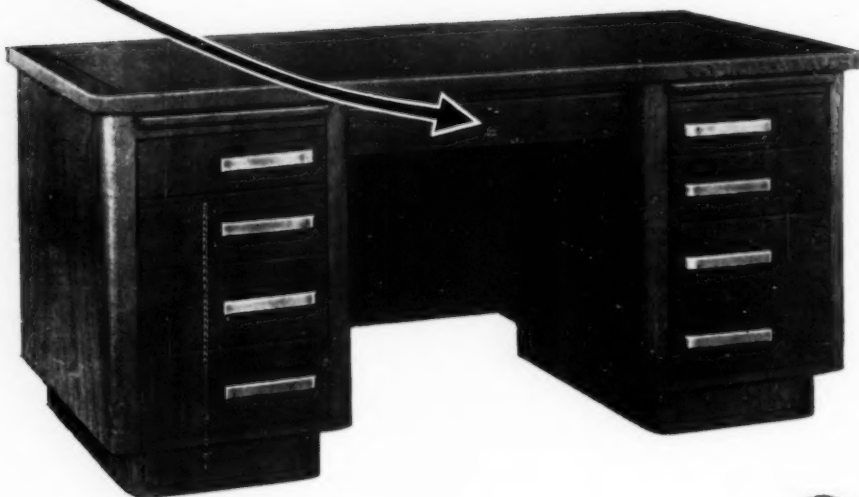
with all contacts between stores control and other departments. Telephone enquiries come direct to him, the head of the department only being available through an extension controlled by the man at the enquiries desk. Similarly, visiting clerks must state their business at the enquiries desk; they cannot contact other operators directly.

The office is thus freed from outside interruption. The man at the enquiries desk is a specialist who knows the whole work of the office and deals with enquiries much more rapidly than was hitherto possible.

The results of this reorganization are considerable. Output of all types of folder rose in two months from a daily average of nine to 19, and a 24 hour service operates for dealing with bin cards, goods received sheets, purchase orders, shortage sheets, etc. At the same time the office staff has been reduced by 5½, with a saving in wages of £1,500 a year. Nor does this include considerable savings in other departments.



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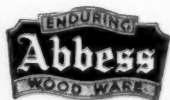


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Abbess wooden office equipment and drawing office furniture including: desks, tables, cabinets, chairs, stools, planfiles, combined planfile and drawing office tables and canteen furniture.

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ADREMA LTD., Telford Way, W.3. Stand G.9.

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AMSELOCK (FILING AND RECORDS EQUIPMENT) LTD., 33 Kinnerton St., Knightsbridge, S.W.1. Stand G.8.

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E.M.I. SALES & SERVICE LTD. (Emidicta Division), 363 Oxford St., W.1. Stand G.60.

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LETTER-FILING APPLIANCES CO., LTD., Pioneer Works, 47 Bath Row, Birmingham 15. Stand G.42.

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LOTZ, ABBOTT & CO., LTD., Avenue Chambers, 4 Vernon Place, Southampton Row, W.C.1. Stand M.38.

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Agents for machinery for the manipulation of paper.

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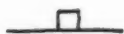
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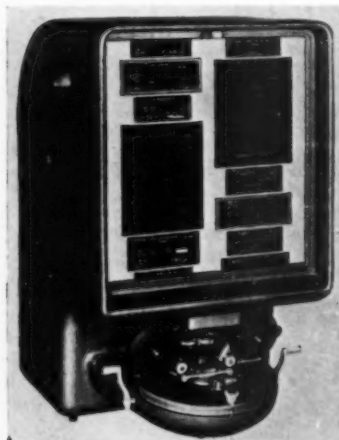
Some Equipment highlights from Olympia

Small Wonder

RECORDING, processing and reading—the three steps of the microfilm process—form a combination which is one of the display highlights at the B.I.F. This new three-unit microfilm equipment, which is being shown for the first time to the British public, is fast, largely automatic and simple to operate.

The attractive recorder unit is fitted with an automatic document feeder, document counter and film footage indicator. Three film patterns available allow either for simultaneous, side-by-side micro-filming of both sides of the original document; large image reproduction (to full 16mm. width) of poor documents, or use of only half of the 16mm. film at the first run through.

The processor will automatically process, dry and respool the film at a rate of 100ft. every ten minutes.



Microfilm Reader by Burroughs
Adding Machine Ltd.

This operation can be done in broad daylight.

Photographic copies can be made on the easily-loaded reader unit—a small cabinet which projects the images on a screen and is used under normal lighting conditions. (Burroughs Adding Machine, Ltd. Stand G.5.)

Bi-Colour Carbon Paper

THE KOLOK Manufacturing Co. besides featuring their usual range of carbon paper, inked ribbons, stamp pads and stamp pad inks, are also showing their bi-colour carbon paper, which is coated in black and red. An entirely revolutionary reinforced carbon paper may also be shown. (Kolok Manufacturing Co. Ltd. Stand M.8.)

Easily Extended

A RECORD and card index filing system which can be extended and easily built into any desired drawer pattern, makes use of a unique locking frame. Components of the Bisley system are held rigidly together by the *Limpet Link* or locking frame.

The system is easily assembled and both cabinets and links are attractively finished in olive green stoved enamel. Examples of the unique rubber cornered waste paper tubs and the *Hingedex* desk index will also be on display. (F. C. Brown, Stand G.24.)

Model 60 Goes Grey

FINISHED in a new grey "wrinkle" enamel, Imperial's Model 60 standard typewriter has many commendable points in its design. One of the main features is the complete interchangeability of all main parts, which allows a far greater variety of work to be typed on one machine. For in-



Imperial Typewriter's Model 60
in new grey "wrinkle" finish.

stance, the typist can instantly change the type-unit, carriage and platen roller.

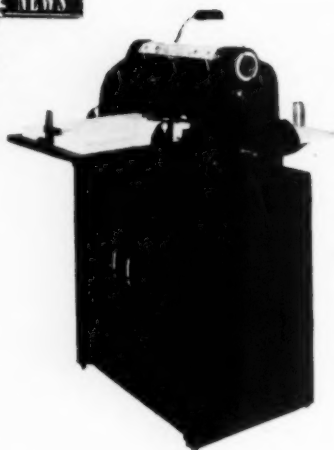
Additional type units can be supplied in every commercially used language and carriages are available in five different widths from 12in. to 26in. Quickset margins and an inbuilt *Keyset* tabulator, adjustable touch and clear cut steel type are other points of interest.

Bearing similar hall-marks of careful design and craftsmanship, is the Imperial *Portable Three*, which has many refinements and is also available in the new grey finish. (Imperial Typewriter Co. Ltd. Stand G.6.)

Gestetner Premiere

WITH many interesting improvements, Gestetner's entirely new duplicator series is on public exhibition for the first time at the '51 B.I.F. Models 180, 180A and 180B will handle work ranging from 5in. by 3in. to 17½in. by 19½in.

Using a vacuum pump inking



The prototype Gestetner 180. Production models will have a grey hammered finish.

system, the machine incorporates features providing for a simpler, cleaner and more versatile duplicating process. Finger-tip speed control (drive by 1/10 h.p. motor) with noiseless operation at all speeds and automatic setting and cut-out for duplication of a predetermined number of copies, are further advantages of the unit.

All 180 models work at speeds up to 60 copies per minute and are finished in attractive grey hammered material. The cabinet has large twin doors and plenty of storage space. (Gestetner, Ltd. Stand G.10.)

Intercom Development

ONE of the latest developments in inter-communication equipment is the *Telespeaker*, a revolutionary little instrument measuring only 4½in. x 1½in. x 2½in., yet performing all the functions of an intercom, phone and loudspeaker. It can be used for private conversation audible only to one person or for loud speech which can be heard by the whole room.

Only eight square inches, the instrument takes up little desk space or alternatively can be fixed to the wall. A device is incorporated which makes conversation entirely private between two points.

Also being shown is *Telesound* equipment which consists of push button instruments with loud speakers fitted at any point in the

premises where it may be desirable to speak to more than one person in a room. (Modern Telephones (Great Britain) Ltd. Stand G.47.)

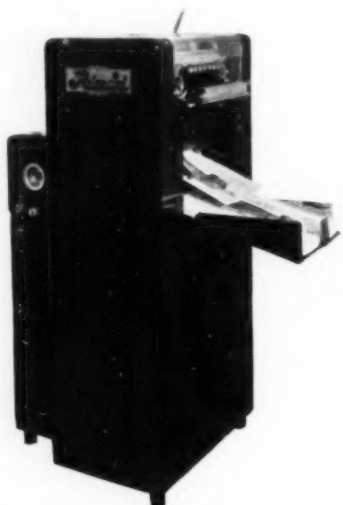
For the Chairman

FIRST class seating for the top executive has been provided by Evertaut Ltd. with their new luxury chair, which incorporates fully sprung seat, back and arm rests. Other points are a special fore and aft tilting unit, a swivel seat, height adjustment and all the merits of correct posture and anatomical support are embodied in the design. Upholstery may be in green or brown uncut moquette or hide. (Evertaut Ltd. Stand G.37.)

Three of a Kind

FOR those with printing problems in the office, the answer to their particular requirements may lie in one of three new British model *Rotaprints*, which are featured on the stand of Kaye's Rotaprint Agency, Ltd.

The new R.70 office model takes paper up to 14in. by 9in., has a speed up to 4,000 copies an hour and produces high quality work. The *Popular* model—the R.40—takes paper up to 14in. by 12½in. and can turn out copies up to 5,200 an hour in perfect register. The



The new British office model by Kaye's Rotaprint Agency Ltd.



Milners three drawer safe filing cabinet.

senior model of the trio is the R.30 *Super*, which takes paper up to 14in. by 20in. and also has a speed of 5,200 copies an hour. All models are fitted with the famous *Rotafount* automatic damping, which does away with damping rollers. (Kaye's Rotaprint Agency Ltd. Stand G.28.)

File Protection

INCREASED protection for correspondence and documents is provided by the Milners three drawer safe filing cabinet which is fitted with a castor base. The cabinet is a standard design and gives maximum protection against the hazards of fire, fall and theft.

Among the other products to be featured by Milners are safes and desks. (Milners Safe Co. Ltd., Stand G.13.)

Word Perfect

CENTRE of interest on the Adrema stand is the *Bradmaster Letter Writer Unit*. Fitted to a standard NEB/25/S printing machine, and working in conjunction with an automatic suction feed unit, the *Bradmaster* produces, at high speed, perfectly matched-in sales letters in one operation. Name, address and personal salutation are printed from a *Bradma* plate, and the text of the letter from a series of embossed metal strips fitted to the letter writer unit.

Each section of the letter is reproduced through fabric ribbon, ensuring matched impressions and



"he's delighted

with *my* duplicating

"He has every reason to be! Every copy is perfect — no waste of time or paper. And how clean and simple with automatic selective inking."

"Of course my Gestetner deserves most of the credit really — it almost works itself — I'm certainly glad we wrote for that demonstration."

Make a point of seeing the new Model 180 on the Gestetner stand at Olympia.



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Please write to Personal Contacts Manager for details of this and other models.

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MAY, 1951

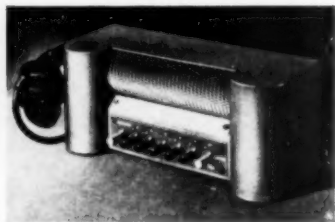
69



reproduction equal to that of normal typing. A new version of the Roll Feed and guillotine attachment is another featured exhibit. (*Adrema Ltd. Stand G.9.*)

Talking Points

SEVERAL people can have continuous intercommunication between one another by using the *Multicom*. This system consists of a number of identical instruments, which are linked together



The Hadley Multicom.

through an automatic exchange. Thus every point on the system can call any of the other points by pressing a switch and can hold clear loud-speaking conversations.

An ordinary hand telephone can be fitted to any unit, giving the user the option of private or loud-speaking communication. Up to 40 points can be connected yet only one power point is required. Another product of the same firm is a portable radio amplifier for providing staff location, music while you work and time signals for the smaller factory. (*Hadley Sound Equipments. Stand G.40.*)

Tape-Riter Recorder

PORTABILITY and easy operation are just two of the advantages of the *Tape-Riter* magnetic tape recording machine. Two other important features are the easily



The Tape-Riter magnetic recorder.

fitted cartridges of tape and the simple controls.

An indicator control on the top of the cartridge is used in conjunction with a card and enables any specific piece of dictation to be quickly located. Each reel of tape takes up to 30 minutes continuous dictation. Besides normal dictating work, the *Tape-Riter* is an effective medium for recording conferences and interviews and for use in sales training programmes. (*London Office Machines Ltd. Stand G.4.*)

Metal File

REPLACING the cardboard file the *Kingsbury* lightweight all metal suspended lever arch file makes a handy, durable unit. It will not bulge and is designed to keep papers safe, clean and in order. (*Kingsbury Components Ltd. Stand G.50.*)

Room for Expansion

EXPANDING and contracting in concertina fashion, the *Expandex* visible filing system is made to fit any make of cabinet. This adaptability together with further special features makes an interesting display on the *Expandex* stand.

The system consists of a series of manila pockets held together by metal bridge members running on side channels. Titles are clearly visible on the top of these members and individual pockets may be broken apart at any point to incorporate new sections.

The end holders supporting the filing sections are of patented telescopic design allowing complete freedom of movement and non-stick action. (*Expandex Visible Filing Co., Ltd. Stand G.49.*)

Credit Control

A REMOTE control, speedy, credit sanction system features automatic perforation and stamping of the sales bill through an adapted telephone system operating between department and control office.

Authorization for credit is quickly achieved by direct 'phone contact between sanction unit and authoriser's panel. By pressing the sanction button the authoriser can cause immediate mechanical sanction of the sales bill which has



The sanction unit of National's Credit Sanction System.

been inserted in the sanction unit.

The equipment is adaptable to any application where authorization from a remote control office is required. (*The National Cash Register Co., Ltd. Stand G.34.*)

Wire and Tape Developments

PRACTICALLY all recording and dictating requirements are covered by the machines being



The model 203 double pedestal desk, which is available in two sizes. The left hand pedestal has three drawers; the right hand pedestal one shallow drawer and one deep filing drawer. (Herbert E. Gibbs Ltd. Stand G.2).

featured on the Wirek stand. For normal dictation work there is the *Magnagraph* business machine, which is exceptionally compact and mains operated. It allows 35 minutes continuous recording on one reel of tape which is mounted in a cassette, making loading and unloading a simple matter.

Probably the most interesting model in the entire range is the *Magnagraph Personal* tape recorder, which weighs only 12lb.

A one handed operation



He had to learn how to do it —
but anyone can record his time
with ease and accuracy on an

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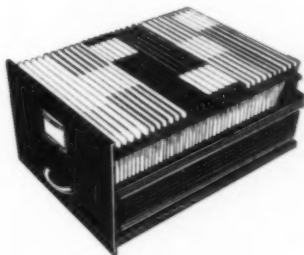


a bit before our time

They had shrewdness and energy
in plenty, these ancestors of ours —
but how handicapped they were
by their primitive office equipment.



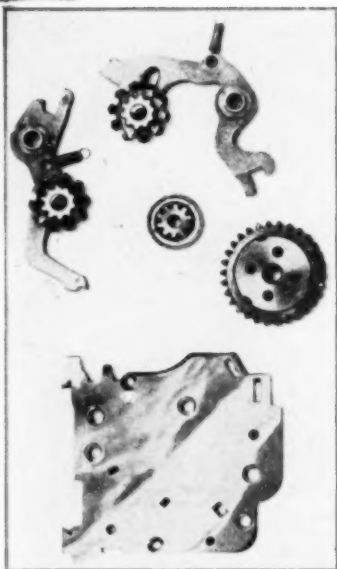
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A selection of totaliser parts which are now being manufactured for the first time in this country. (Typewriter Sundries Co. Ltd. Stand G.22).

and uses tape—one spool lasting about 25 minutes. It is clockwork driven, the only other power being a small dry battery which lasts several hundred hours.

Other machines being exhibited include the small *Airborne* recorder, designed for use in aircraft and weighing 10lb. and the A, B1 and B2 models. (*Wirek (Electronics) Ltd., Stand G.50A.*)

New Models

THREE new models have recently been added to the range of *Arclight* office furniture, and these are on display at the E. N. Mason & Sons Ltd., stand. They incorporate several new features and refinements in design.

Also shown is an efficient vertical plan filing system incorporating a visible index and facilities for classifying drawings, maps or plans. Charts are permanently affixed to individual holders, suspended in sections and permitting instant finding, extraction and filing.

On display at the Birmingham section of the B.I.F. is a new automatic machine which will

clearly reproduce plans or tracings regardless of their condition. The new *Hermes* photo copier for economical high-standard printing is also being shown. (*E. N. Mason & Sons Ltd. Stand G.17.*)

A Staple Product

AN INTERESTING model in the McGill range is the Stapco spool wire stapling machine. This unit uses a spool of wire producing approximately 10,000 staples—a simple movement of the hand lever making, inserting and clenching. From two to 50 sheets of paper may be inserted and bound at one time. (*Lotz, Abbott & Co., Ltd. Stand M.38.*)

Loudspeaking Intercom

ATTRACTIVELY styled and incorporating a high-efficiency loudspeaker and built-in super-sensitive microphone, the loudspeaking *Interphone* system is being featured on Stand G.52.

Initial contact is made immediately the appropriate selector key is depressed. The key does not have to be held down while speaking to any one or more of the extensions concerned, thus leaving the hands free. (*Standard Telephones & Cables Ltd. Stand G.52.*)

Elegant M.44

MODERN features included in the elegant Olivetti M.44 typewriter are the automatic margin setting from the front of the machine, and eight key pre-selective tabulator, with press button setting for clearing all stops.

Another useful point is that the M.44 is available in six carriage widths from 11in. to 27in. The very clear type impression makes it an

excellent machine for stencil cutting. (*British Olivetti Ltd. Stand G. 65.*)

Frankly Appealing

TRULY the "small mailers" postal franker is the new *Simplex* which is the latest addition to the *Frankopost* range. Small and neat, it prints any value of postage up to 6½d. in one impression, therefore coping with the new 1½d. printed paper rate which comes into operation on June 1.

It is claimed that a post as small as ten to twenty letters a day justifies its use. Another *Franko-*



The new Simplex postal franker.

post model is the *Multi-Value*, which prints up to a maximum of 29s. 11½d. and is designed to deal not only with inland correspondence, but parcels, overseas and airmail post as well. (*Universal Postal Frankers Ltd. Stand G.44.*)

Universal Printer

MATERIALS ranging from metal to muslin or paper to plastics can all be colour printed on the new, automatic *Marathon* finishing machine.

Using a dry-foil process the



This well finished executive desk is model D.3 in the Howden range and can be obtained with either an olive green or pearl grey finish. It measures 5ft. long by 2ft. 9in. deep and is 2ft. 6in. high. (James Howden & Co., Ltd. Stand G.39).



B.I.F. STAND No. G.28

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England.



compressed-air operated unit will print in several colours concurrently on nearly every type of material. An output of up to 2,000 units per hour can be accomplished. (Markmaster Ltd. Stand G.1.)

Lightweight Duplicator

DRUMS on the Bulmer rotary duplicator can be easily and quickly changed when colour work is needed. This lightweight, automatic feeding, hand operated machine was first displayed at last year's B.I.F., and it will no doubt continue to attract considerable interest at the 1951 Fair. The *Addo* range of adding machines, and *Bankdex* and *Vistadex* business systems are also being shown. (Bulmer's (Calculators) Ltd. Stand G.59.)

New Numberer

THE shockproof quality of certain plastic materials has recently been utilized in the manufacture of numbering machines. An example of this interesting, new develop-

ment can be seen at the English Numbering Machines Ltd., stand where a unit of plastic frame construction is on display.

Self-inking daters, type high boxes and various counting devices form the balance of the exhibit. (English Numbering Machines Ltd. Stand G.57.)



An example of the Stormor mobile storage equipment at a well-known British factory. (J. Glover & Sons, Ltd. Stand G.3).

Multi-Purpose Equipment

ADAPTABILITY to any filing capacity is the feature of the multi-purpose equipment on display at the Amselock stand. Four standard filing drawers differing only in height, provide filing capacity for any dimensions of card, file or paper, etc., by a simple adjustment. (Amselock (Filing and Records Equipment) Ltd. Stand G.8.)

Fast Folder

ONE of the most unproductive jobs in the office is the folding of documents. One answer to this problem will be seen on stand F.32 where the *Bancroft Junior* folding machine is being displayed. This unit is portable, electrically driven, simple in operation and folds 15in. long sheets at the rate of 7,500 per hour and 10in. long sheets at 12,500 per hour.

Also being featured is a new double demy five fold machine which has an electrical cut out to prevent jamming when misfeeding

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- 9** Forms a Card Index in addition to an Addressing or Listing Service.
- 10** Indexograph Address Units will last as long as you need them.
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MAY, 1951

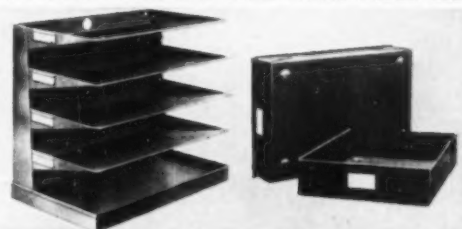
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Harvey

G.A. Harvey & Co. (London) Ltd.
Woolwich Rd. London, S.E.7



occurs. (Bancroft Folding Machines Ltd. Stand F.32.)

Magnetic Dictation

PRODUCING unbreakable recordings, the *Emidicta* electronic dictation/transcription machine records magnetically on specially coated paper discs.

The six-minute-capacity paper discs can be erased for re-recording, filed indefinitely or folded and sent through the post. Recording is made through either a hand or desk microphone.

Finger-tip stop-start and repeat controls are incorporated in the typists' control unit. This attachment fits on to the typewriter frame just below the space bar. (E.M.I. Sales & Service Ltd. Stand G.60.)

Facilitates Planning

A COMPACT and effective method of charting which greatly facilitates planning is provided by the *Visi-Control Planning Machine*. It takes the form of a perforated cylinder with guides and coloured signals indicating data.

The cylinder revolves to a pre-determined time cycle, and gives a continuous charting surface, while rotating cursors give finger-tip control.

The system is very flexible and each unit can be designed to meet the user's existing requirements, yet it can be readily adapted to changing needs. (Visi-Control Ltd. Stand G.32.)

Composite Cabinets

BRISK demand is anticipated by the manufacturers of a new composite filing cabinet which includes a security cupboard in place of the top drawer. It is thought that this design will appeal to business executives. (Sheer Metalcraft Ltd. Stand G.20.)

Cuts the Cards

A NEW addition to the range of *Totax* combined P.A.Y.E. wages books is the *Office Totax* for salaries. All details are kept in the one book so that the weekly task of completing income tax cards becomes unnecessary. No time is wasted in referring to previous

weeks' entries because of a unique "window" arrangement which shows the cumulative weekly totals.

The same firm is also displaying loose leaf binders and standard rulings for other kinds of accounting and record keeping. (Moore's Modern Methods Ltd. Stand G.25.)

The Interecorder

USING a plastic tape which will give 20 minutes recording time, the *Interecorder* is a remotely controlled unit combining dictation and recording facilities for messages on both internal and external telephone systems.

The recorder is operated by one switch which controls dictation, recording of telephone conversations, re-winding, play-back and stop. The machine is only available on rental terms.

Other products on display include telephone and intercommunicating systems. (E. Shipton & Co., Ltd. Stand G.55.)

Office Equipment Industry
News appears on page 118.



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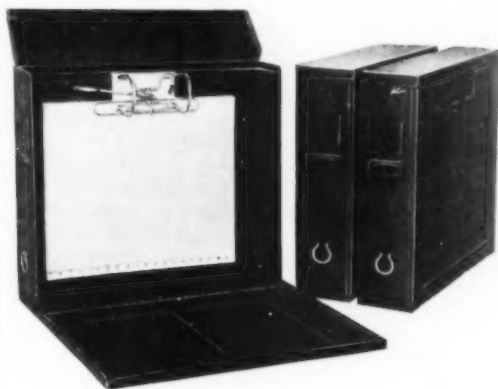
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This watch watches the watchman

By DAVID DARVILL

Even the best of watchmen can occasionally slip up. To check on the accuracy of their watchmen's performance of their rounds, Pond's Extract Co., Ltd., have installed a simple electrical device which gives foolproof control.

A YEAR ago the management of Pond's Extract Co., Ltd., of Perivale, decided that the existing system under which their night watchmen worked had certain drawbacks. Watchmen were not omniscient, and under certain conditions they might fail to meet the demands of their responsibility. Even loyal employees occasionally deviate from their appointed tasks.

Something different from the "on your honour" type guard security was required. An accurate and fool-proof check on their watchmen's nightly rounds would relieve the management of any doubt and provide the kind of security which they felt their property demanded. The question to be solved was: what system will give an accurate, simple check on watchmen's movements?

In the end, Pond's decided that the system that would best meet their demands, and the one which could be efficiently installed at a low cost, was a recent development called the *Watchman's Patrol Check Unit*.

Briefly, the system is an electrical network of modified two-way switches placed at strategic positions and connected in series. "Brains" of the network—the check unit itself—is a low voltage control box containing an electric numerator, A.C. synchronous electric clock, and necessary relays, rectifiers and transformers. The whole operates from A.C. mains and consumes about 10 watts when

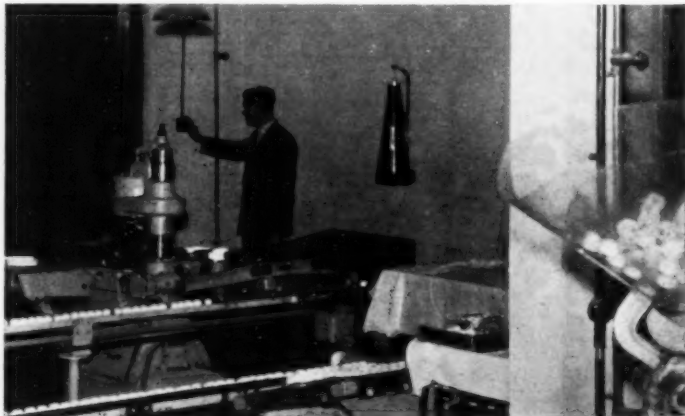
in use at night, or six watts while "standing by" during the day.

It is interesting to note that the manufacturers of this equipment, like Pond's, had found the original watchman's system in use on their own premises was inadequate and developed this unit to meet the need. It proved so successful that the company decided to offer it for general re-sale, and the results have been very encouraging.

How the system operates in practice can best be described by investigating the conditions at Perivale and seeing first hand what takes place. Two men (5 p.m. to 8 a.m.), alternate nightly with another pair, guarding offices and factory in two buildings covering

an area of 65,000 sq. ft. Week-ends are divided into five watch periods with five different teams of watchmen. Nineteen switches have been placed about this area in such a way that all sections of the buildings must be covered if all switches are to be visited.

The check unit (12in. by 5in. by 5in.) is kept in the reception office. At the beginning of the watch period, the person responsible for the watchmen unlocks the metal case and starts the equipment operating by pressing a button and throwing a small switch. This turns on a red light and sends current through the remote switch circuit. *Providing that the watchman correctly*

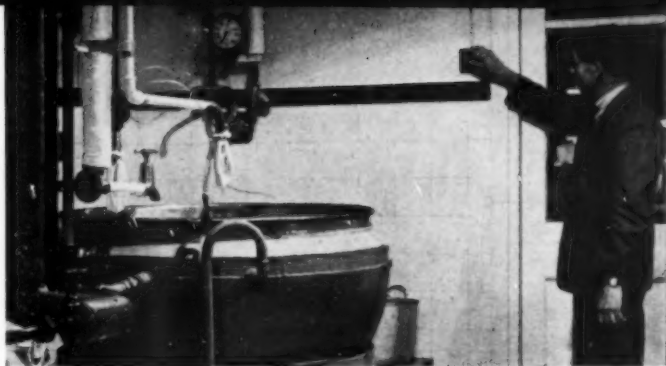


The night watchman throws one of the switches on his way round the works.

makes his rounds, this light will go out and the meter counter will register one additional digit. If he fails to complete his round and throw *all* switches, the light will stay on and the meter will not register. The light is a check for the watchman and the meter a check for the manager.

The watch period itself is controlled by a special device or time determining ring which has been set, in this case, for two hour intervals or five watch periods per night. Once started, this device automatically turns on the red light at the beginning of each period. The watchman knows at a glance when to begin his rounds and whether the switches must all be put to the "up" or the "down" position. If the light shows towards the top of the box, all switches must be flicked up; if the light shows towards the bottom of the box, all switches must be flicked down. Mis-operation or a "double" switch will not cause the counter to over-record. If the light is still on when the watchman returns to his base, he knows that he has not called at every point and operated every switch, and the meter will not record until this has been done.

Actual times of the patrol can be varied, if desired. By a simple adjustment of the time determining ring, on the time clock, watch



Another of the switches, which is located in the cream manufacturing laboratory.

periods can be varied to suit the convenience of the user.

Pond's have found that one of the main advantages of the *Watchman's Patrol Check Unit* is the scope it gives to the watchman's pattern of movements. For example, a man need not begin his rounds at switch No. 1 and continue from there consecutively to switch No. 19. He may begin his patrol at any point in the "chain," the only stipulation being that he must visit and throw *every* switch.

An additional problem which had to be met in this installation, and one which would occur where a number of watchmen were employed, is this: when the numerator is checked and some discrepancy is found, how is it possible to tell which particular watchman failed to complete his prescribed number of rounds?

The manufacturers overcame this difficulty by designing a special, individual watchman's unit. Like the parent unit, it is enclosed in a locked, metal case and has one switch attached for each watchman employed. Before making his round, the man flicks his switch, activating an electric clock and numerator. If the round has been successfully completed and the man has operated all switches, the numerator will record. It is only necessary to check these totals if a discrepancy has been found.

Pond's have been satisfied with the operation of the new unit and apart from one or two minor electrical difficulties no major operational troubles have been encountered since installation. The watchmen concerned have accepted the equipment as a necessary check.



The watchman must enter all departments in order to operate the switches.



The watchman activates an electric clock and numerator prior to rounds.

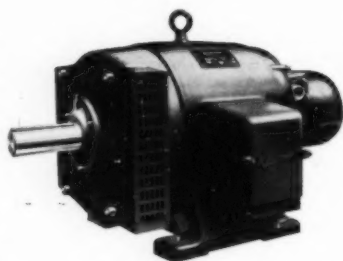
Equipment highlights from Castle Bromwich

Automatic Spraying

FOR mass production painting of flat work (wall boards, panels, hides, skins, etc.) the *Type T.A* traversing gun, automatic spray painting plant is mounted on a travelling carriage, traversing the work at right angles to a moving conveyor.

Supported by two tubular columns and adjustable for height, the carriage runs on a twin rail assembly. This incorporates an endless belt driven by a fractional horsepower motor. A double acting pneumatic clutch grips the carriage to the upper and lower belts alternately, and operates the gun.

The *Type T.A* is suitable for mounting over flat bed conveyors including the cable, band, slat or



One of the new large industrial motors being exhibited by Newman Industries Ltd.

ting valves. (*Aeraspray Mfg. Co., Ltd., Thimble Mill Lane, Birmingham 7, Stand D.734, Castle Bromwich.*)

New Motor Range

TWO examples of the latest addition to a comprehensive range of electric motors can be seen at the Newman Industries stand. The slip ring, screen protected types shown represent a new line of industrial units with outputs from 20 h.p. to 200 h.p.

Made in slip ring or squirrel cage induction types, they are supplied as screen protected, drip proof or totally enclosed. Shafts are exceptionally robust and the ball or roller bearings are specially designed for long wear. (*Newman Industries Ltd., Yate, Bristol, Stand C.518, Castle Bromwich.*)

Luminous Ceiling

A LUMINOUS, false ceiling adaptable to any site and giving high light intensity without glare is one of the B.I.F.'s new lighting exhibits. Called *Crompton-Louvalite*, it consists of lattice-louvre sections which are fitted below fixed lighting units.

The 2ft. 9in. sectional squares

are made of light metal and can be cut to fit irregular alcoves or pillar supports. Each section is supported on a simple structure and has an ingenious method of quick release which enables it to hang down or to be removed completely without the use of tools.

Other new products exhibited for the first time by the same manufacturer include the *Magnicon* alternator, *CLA* switchgear, street lighting lanterns and conducting rubber cable. (*Crompton Parkinson Ltd., Crompton House, Aldwych, W.C.2, Stand C.609, Castle Bromwich.*)

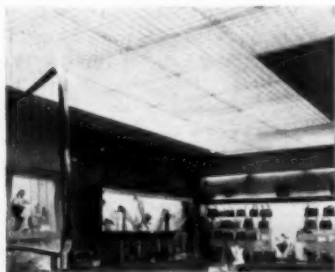
Mobile 6-Ton Crane

ANOTHER B.I.F. "first exhibit," the *KL66* mobile crane, is a 6-ton unit which will work at fast speeds with a high degree of sensitivity control.

Lorry-type controls using only three foot pedals (engine-clutch, travelling brake and engine speed) and a large diameter steering wheel help simplify driver opera-



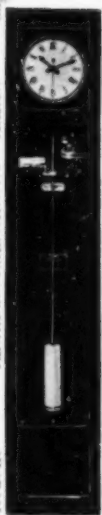
The 6-ton *KL66* mobile crane which is being shown on the stand of George Cohen & Sons Ltd.



An example of the *Crompton-Louvalite* luminous ceiling made by Crompton Parkinson Ltd.

wire mesh types, and the length and speed of carriage travel are adjustable.

Other exhibits on the *Aeraspray* stand include automatic spray guns and sensitive fluid pressure regulators for use with the *Ransburg* Electrostatic spray painting process and two new air rectifiers with all-metal filter elements and higher capacity pressure regula-

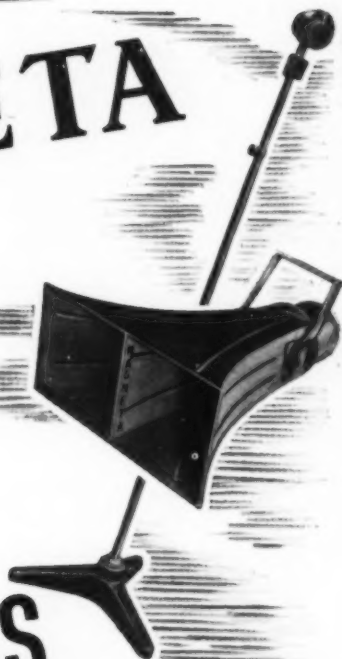


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tion. When the crane superstructure is slewed to the rear, steering is automatically reversed to normal action.

Direct mechanical transmission is used with a 37 b.h.p. diesel engine as prime mover. Hoisting, slewing, travelling and derricking motions are independently operated and reversible and each motion uses its own gearbox. Maximum crane duty is 6 tons at 9ft. radius with proportionally smaller loads for larger radii. Hoist speed with a 6-ton load is 40ft. per minute but lighter loads up to 2 tons can be handled at 120ft. per minute.

A differential four-wheel drive overcomes wheel spin and assists tractive power. Gradients up to 1 in 8 can be negotiated by the

machine travelling light; and a full load of six tons can be carried on level ground at speeds up to 3 m.p.h. Without loads, on level ground, the crane can travel at 6 m.p.h. and can turn in a circle of 23ft. radius. (*George Cohen Sons & Co., Ltd., Wood Lane, W.12 ("600" Group). Stands Outdoor 1332, 1327 & 1226, Castle Bromwich.*)

New Products

AMONG new products being shown for the first time by Jenolite Ltd., are a decarbonising solution which will remove carbon deposits from internal combustion engine valves, and an aluminium ornamental etchant which will impart an artistic finish to aluminium surfaces.

- An aluminium degreaser process which has particular application to aircraft maintenance, is also being demonstrated. (*Jenolite Ltd., 43 Piazza Chambers, Covent Gdn., W.C.2. Stand B.221, Castle Bromwich.*)

Woodworking Machines

TWO new machines for the woodworking industry are on display at the Metalclad Ltd. stand. These units, the straight line cross-cut saw and the vertical boring machine, are featured in a range which includes the following: combined chain cutter and hollow chisel mortiser; 36in. and 24in. hand saws; 21in. saw bench; 9in. planer; hollow chisel mortiser; combined over and under planer and thicknesser; 8in. lathe; universal pull-over cross-cut saw; double disc sander; band sander; and heavy duty spindle moulder. (*Metalclad Ltd., Stanningley, Nr. Leeds ("600" group). Stands Outdoor 1332, 1327 & 1226, Castle Bromwich.*)

Diesel Fork Truck

DIESEL engine for lower operating costs, the 2DH/9 Stacatruc fork lift truck is fitted with a Perkins P4 engine capable of providing 40 b.h.p. at approx. 2,000 r.p.m.

The new type of overhead protective canopy provides an effective guard against toppling loads or—with canvas screen—weather protection for the operator. Makers



The diesel engine Stacatruc model made by I.T.D. Ltd.

claim that the fitted cushion tyres embody the advantages of the solid rubber type including safety, high load capacity, minimum maintenance and long life. (*I.T.D. Ltd., 95/99 Ladbroke Grove, W.11. Stand Outdoor 1356, Castle Bromwich.*)

Compressed and Clean

COMPRESSED air, uncontaminated by oil vapour impurities, which has to be used in such things as food processing, raising of certain liquids and in special applications in medical and industrial laboratories is now possible with the DP6 compressor.

The DP6 is a small electrically-

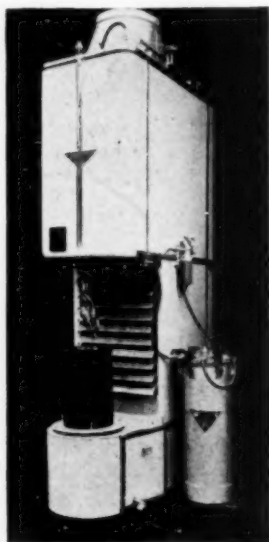


The Hymatic Engineering Co. Ltd. are featuring this diaphragm-type air compressor.

driven diaphragm-type air compressor which requires no lubrication whatever—the bearings being grease-packed. Little maintenance is necessary.

Other exhibits include the new, inexpensive agricultural compressor; representative range of electric or petrol driven static, mobile and portable compressors; com-

SPRAYING INSIDE



A speedy, simplified automatic process for interior painting of open topped cylindrical articles is incorporated in the VRSA internal coating machine. An automatic spray gun with a vertical reciprocating slide mounting paints the drum, keg or bin while it is held on a power-driven variable-speed turntable. The unit is operated by a foot pedal and is available in two sizes. (*Aerospray Mfg. Co. Ltd., Thimble Mill Lane, Birmingham 7. Stand D 734, Castle Bromwich.*)



**The Safe way
of filing!**

THE PROTECTION of important correspondence and documents is too often entrusted to an ordinary steel filing cabinet, which does not, of course, offer a high degree of resistance against fire, fall or theft. The illustration (left) shows a specially constructed MILNERS Fire-Resisting Safe fitted with a Three-Drawer Vertical Filing Cabinet. Four-Drawer Cabinets are also available and both can be supplied with or without the castor base unit. This gives the maximum protection against the aforementioned hazards. Company Secretaries and other guardians of important papers should seriously consider the installation of at least one of these Safes in their private offices.

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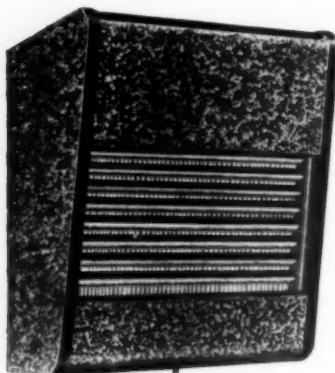
Visit our Stand No. D757—656 B.I.F. Birmingham



pressor ancillary equipment and tools. (*The Hymatic Engineering Co., Ltd., Redditch, Worcs. Stand D.136 Castle Bromwich.*)

New Space Heater

A SPACE heater, suitable for both small and large installations, is making its debut on the Radiant Heating stand. It is the *Super-therm* model and is rated at 35,000



The Supertherm space heater.

B.Th.U.'s with a radiant efficiency in the region of 52 to 56 per cent. The radiant elements are manufactured from thermal-shockproof refractory. The burner is of stainless steel and is of the pin-hole type. (*Radiant Heating Ltd., Radiant Works, Barnsbury Park, London, N.1. Stand D.766, Castle Bromwich.*)

Dust Collection

WHAT to do about dust on a large scale is demonstrated on a small scale, by an interesting sectional display of a dust collector. Of honeycomb design, the unit is similar to that recently installed at a power station boiler plant firing pulverised fuel. The multiplicity of die-cast aluminium tubes adequately resist abrasion.

A sectional model of a low resistance dust collector will also be on view. The small 8-tube pilot plant with 3in. diameter tubes shows the arrangement of the tubular dust collector with the sloping tube plates and incorporation of the decantation hopper.

Additional exhibits include a

TURBO-DRIVE TRUCK



With no clutch or gearbox, the petrol or diesel driven Model 6020PT fork truck uses hydraulic turbo-drive and automatic gearing to transmit engine torque. Difficulties of wear and maintenance associated with the conventional clutch and gearbox drive are eliminated. The unit has a load capacity of 6,000 lb. (at 20 in. from heel of forks) and a 12 ft. lift. (*Conveyancer Fork Truck Co., Liverpool Road, Warrington, Lancs. Stands D 717 and 616 and Outdoor 1358, Castle Bromwich.*)

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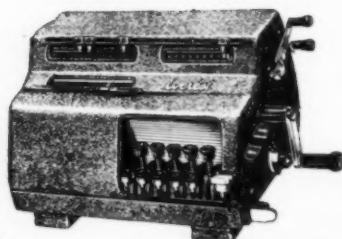
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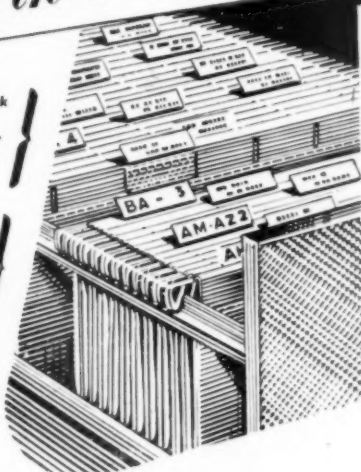
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STAND C 3 OLYMPIA



range of tubular elements used in dust collection equipment and typical impellers used with Prat-Daniel fans. (*Prat-Daniel (Stanmore), Ltd., Dalston Gdns., Stanmore, Middx. Stand D.152, Castle Bromwich.*)

Stud Welding Developments

THE latest and improved stud welding equipment is being featured on the Cyc-Arc stand. These include a controller unit, a portable hand tool and a machine tool equipped with an electro-hydraulic welding head. The controller embodies an improved electronic timer with separate coarse and fine controls, giving greater consistency



Type D portable stud welding tool by Cyc-Arc Ltd.

and accuracy.

Improvements in the design of the electro-hydraulic welding head—the model F—still further increases the ability of this machine to withstand high rates of production stud welding over long periods without impairing its accuracy. (*Cyc-Arc Ltd., 27 New North Rd. N.1. Stand C.218, Castle Bromwich.*)

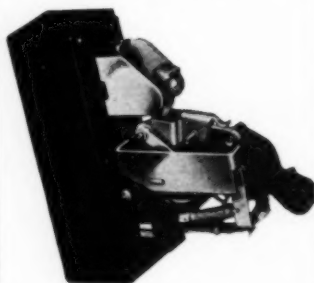
Three Wheel Lift

A NEW production exhibited for the first time is a three-wheeled, battery-operated fork lift truck which has been specially designed for operation in minimum width gangways.

Highly manoeuvrable and easily serviced, the Model E2-20/3W has a load capacity of 2,000 lb. at 20in. from the heel of the forks. It will "comfortably" negotiate 10 per cent. gradients, will travel at a speed of $4\frac{1}{2}$ m.p.h. and lift to a height of 9ft..

The single unit driving mechanism can be readily removed for servicing. Hydraulic load elevation and mast tilting are effected through a high efficiency electrical

SMALL CIRCUIT BREAKER



A sizeable contrast to some of the other Siemens-Schuckert exhibits is this miniature circuit breaker. With base measuring only $1\frac{1}{2}$ in. wide by $4\frac{1}{2}$ in. high, this single-pole breaker has short circuit and time-lag overload releases. It is available up to 30 amps, 25 volts, D.C. and A.C. (*Siemens-Schuckert (Great Britain) Ltd., Brentford, Middx. Stands 303 and 204, Castle Bromwich.*)

driving pump. (*Conveyancer Fork Truck Co., Liverpool Rd., Warrington, Lancs. Stands D.717 &*

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616 & Outdoor 1358, Castle Bromwich.)

The New Climette

WINDOW sill air conditioning has the advantage of space conservation; and a unit being exhibited only projects into a room some 13in. and has overall measurements of only 15in. by 39½in.

Claimed to be the first of its type manufactured on a large scale in this country, the *Climette* fits on a specially designed cradle fitted on the window sill. The external portion is weather proofed to resist extreme temperature and heavy rain and the whole unit can be quickly removed from the mounting cradle for easy maintenance. (F. H. Biddle Ltd., 52 Clerkenwell Close, E.C.1. Stand B.330, Castle Bromwich.)

Easily Moulded

THE number X17163 is the "name" given to an interesting new phenolic moulding material manufactured by Bakelite Ltd. Easily moulded and with improved elec-

trical properties, the new material is ideal for miniature valve base work, plugs and sockets, etc.

A wide range of products made from Bakelite materials is also being exhibited. (Bakelite Limited, 18 Grosvenor Gdns., S.W.1. Stand C.404, Castle Bromwich.)

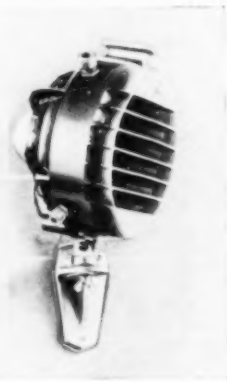
A'Pressing Matter

WITH refinements for easing the work of the operator and tool setter, the Bronx all steel welded press brake has a capacity of 8ft. by ½in. mild steel of 60-tons normal rated pressure.

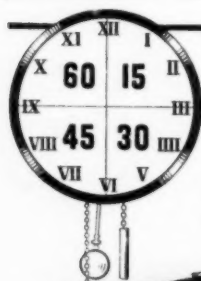
Among improvements in operating facilities of this machine are a dial—indicated bottom dead centre; connecting rod counter indicators; increased shut height; ram stop mechanism; single stroke operation; multi-plate dry clutch "inching" top beam control, and motorized power adjustment with safety limit switches.

By means of the ram stop mechanism, the press will single stroke, coming to rest automatically at top dead centre. By moving a lever the mechanism is disconnected and

WARM AND ATTRACTIVE



With an all-copper heating element this Spiraluxe steam model miniature fan heater is for mounting on walls. Automatic thermal cut-out, built-in switch and attractive stove enamelled casing are features of both the 2 kw. and 3 kw. sizes. (The Spiral Tube & Components Co. Ltd., Osmaston Park Road, Derby. Stand D 710, Castle Bromwich.)



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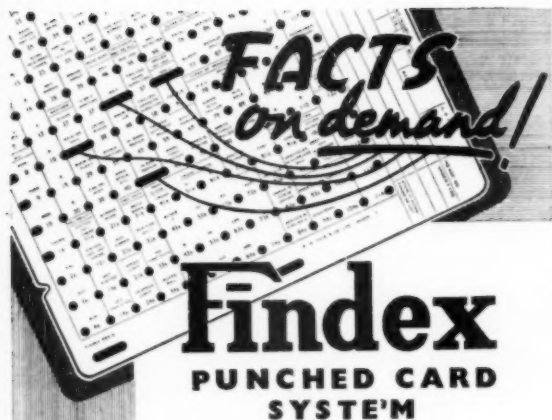
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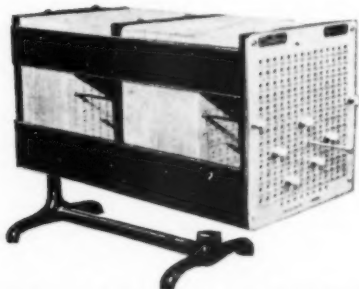
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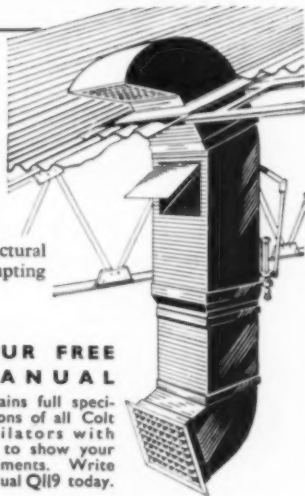


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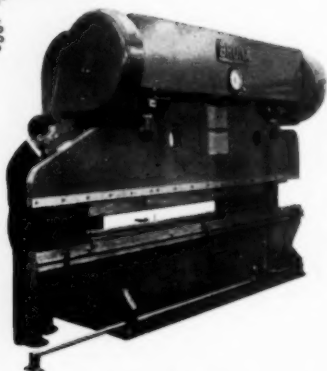
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NEWS



All steel welded press brake by the Bronx Engineering Co. Ltd.

the machine works as a normal press brake. Incorporation of limit switches ensures prevention of over-run of the top beam when being moved for tool adjustment either up or down.

The press brake has the following dimensions: distance between columns, 8ft. 4in.; overall length over beam, 10in.; strokes per minute, 30; length of stroke, 3in.; gap

in columns, 12in.; ram adjustment, 6in. (*Bronx Engineering Co. Ltd., Dudley Rd., Lye, Worcs. Stand D.236, Castle Bromwich.*)

Dries the Atmosphere

THE attractive small portable dehumidifier exhibited at the stand of F. H. Biddle Ltd., is designed for use under climatic conditions where humidity is high and the temperature not excessive.

The unit "dries" the atmosphere by a quiet-running refrigeration process operating through a simple electrical connection. Condensed water is removed by a built-in bucket or drain, as desired. (*F. H. Biddle Ltd., 52 Clerkenwell Close, E.C.1. Stand B.330, Castle Bromwich.*)

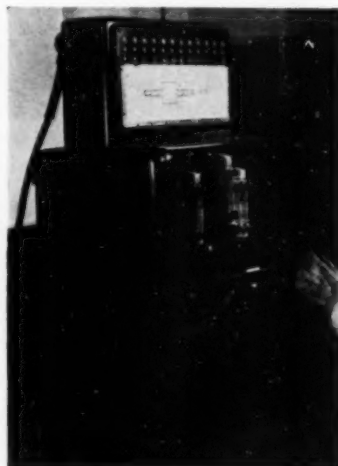
Comprehensive Inspection

THE pass word for the pictured multi-dimension inspection machine is "O.K." Alternatives are "plus" and "minus."


One of a comprehensive range of inspection units this hand-operated machine visibly indicates whether a particular component is

satisfactory or not. Simple type signal light boxes register plus, O.K. and minus signs for each dimension to be tested.

The smallest machine of this



Alfred Herbert Ltd. are showing this multi-dimension inspection machine.



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Sheets, Warrants, etc., are a few of the tasks for
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with ABSOLUTE ACCURACY, and
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Wages, Dividend and Annual Return Sheets, Rate
Sheets, Warrants, etc., are a few of the tasks for
which these machines have been specifically designed.
Nearly fifty years of experience is available, to simplify
any problem you may have, and YOUR problem is a
matter of vital importance to us from the moment we
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type is suitable for the inspection of watch, clock, meter or similar components on which two pivot diameters and length between shoulders or over the end of the pivots have to be checked.

Automatic inspection machines which have an output as high as 4,000 components per hour are being demonstrated and plastic moulding and die-casting machines, miscellaneous small tools and measuring equipment are also on show. (*Alfred Herbert Ltd., Coventry. Stand D.310, Castle Bromwich.*)

Products for Productivity

PRODUCTS to increase productivity sum up the exhibits of Fisher & Ludlow, Ltd. Their main exhibit is a display of *Flowstack* pallets and containers. The pallets will be of many designs and the containers are of corrugated construction, giving strength with lightness.

A new item is the *Flowtip* container which can be handled by fork truck or crane and loaded at any height required. The container can also be fitted with castor

wheels to increase its mobility. (*Fisher & Ludlow, Ltd. (Gridway Division), Bordesley Works, Birmingham 12. Stand Outdoor 1318, Castle Bromwich.*)

Improves the Atmosphere

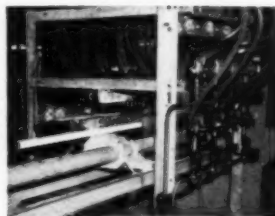
FOG removal on a small scale is the job of a new air conditioning unit. Designed to remove steam and fog from laundries, wash houses and dye houses, the system incorporates both a heating unit and an exhaust fan. Makers say that it is highly successful in eliminating excess moisture in the atmosphere.

Steam unit heaters are demonstrated at the stand by a complete installation including an oil-fired low pressure boiler. (*The Spiral Tube & Components Co., Ltd., Osmaston Park Rd., Derby. Stand D.710, Castle Bromwich.*)

New Machines

TWO new pieces of equipment being featured by the Rockwell Machine Tool Company, are an automatic coil cradle and scrap

METAL SPRAYING



Capabilities of the fully automatic metal spraying machine are demonstrated by a complete working exhibit on the Metallisation stand. Able to treat 10,000 ft. of steel tubing in one day with an exterior coating of .004 in. of zinc or aluminium, the machine uses a method of metal spraying which gives economical, high speed production of top quality coatings. (*Metallisation Ltd., Barclays Bank Chambers, Dudley, Worcs. Stands Outdoor 1347 and 1246, Castle Bromwich.*)

chopper. The former allows automatic uncoiling by means of the already well known mercury switch

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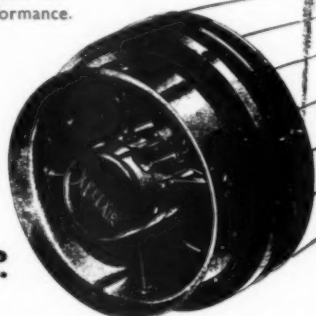
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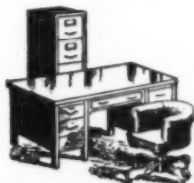
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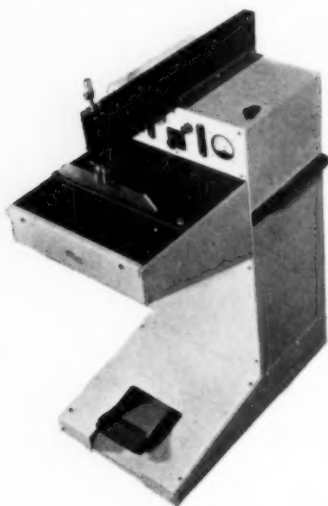


MYERS

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lip control and includes new power operated lifting arrangements. The Scrap Chopper is completely enclosed by a swivel guard which



Radyne WS/A 1-Kw. plastic sheet welder by Radio Heaters Ltd.

automatically switches the machine off when lifted. The cutter blades are usable on four different edges, which cuts re-grinding frequency. Besides these two machines there is a comprehensive display of British-built U.S. press room equipment. (Rockwell Machine Tool Co., Ltd., Welsh Harp, Edgware Rd., N.W.2. Stand D.159, Castle Bromwich.)

New F.H.P. Motors Displayed

THE attractive, polychromatic green finished motors on display at this stand belong to the new Gryphon fractional horsepower motor range. They are available in single phase .166 to .5 h.p., split phase or capacitor; and three phase from .125 to 1 h.p.

All motors are housed in a heavy-gauge double steel shell with drip-proof cast iron endshields. Detachable cast iron feet are fitted and conduit entry is incorporated in the non-driving endshield. Where quiet running is desired, white metal sleeve bearings—alternative to the standard ball type—can be supplied.

SYNCHRONOUS TIMER



Sensitive enough for use as the temperature control mechanism on a premature baby incubator, this new "drift free" synchronous timer is suitable for many industrial uses. (Londex Ltd., Anerley Road, S.E.20, Stand C.722, Castle Bromwich).

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Both these all-British machines are manufactured in a selection of keyboards to suit a variety of specialised needs.

They are marketed on the Home Market by SUMLOCK LIMITED, 1 Albemarle Street, London, W.1, and overseas by BELL PUNCH CO. LIMITED, to whom all overseas enquiries should be addressed, at 39 St. James's Street, London, S.W.1. REG. 1331.

THE SUMLOCK Adding-Calculator



*Exhibited at
Festival of Britain
H.M.S. CAMPANIA*



The range includes protected, totally enclosed for flange types with or without feet, and resilient mounting models for refrigerator or similar applications. (*Brook Motors Ltd., Empress Works, Huddersfield. Stand C.304, Castle Bromwich.*)

Lifts 18,000 lb.

SOLID proof that a fork lift truck is marketed which will handle 18,000 lb. at a height of 17ft. 6in. can be seen on the Ransomes & Rapier stand, because



One of the heavy duty fork lift trucks being exhibited by Ransomes & Rapier Ltd.

their largest model will handle such loads.

Designed for the economical handling of a wide variety of goods during distribution, transit, storage and manufacture, Rapier heavy duty fork lift trucks are available in sizes capable of lifting from 10,000 to 18,000 lb.

Models can be fitted with either a short mast, giving a lift height of 12ft. 6in., or a long mast with a lift of 17ft. 6in. Special forks and a crane attachment are also available. (*Ransomes & Rapier Ltd., Waterside Works, Ipswich. Stands Outdoor 1311 & 1210, Castle Bromwich.*)

Induction Heating

AN EXTENSIVE display of induction heating equipment is being featured by Radio Heaters, Ltd. One of their latest models is the C25/A, which has a 3 k.w. output. An important feature of this unit is that no access need be obtained to the front of the generator, thus making it particularly suitable for use with mechanical handling gear. The equipment incorporates a



The Wolf WD4C heavy duty drill.

number of patented features which, the makers claim, enables it to perform operations not previously possible on a set of this rating. (*Radio Heaters, Ltd., Wokingham, Berks. Stand C.216, Castle Bromwich.*)

Controlled Dehydration

YET another aspect of "control"—the magic word of production methods—is exhibited at the Birlec

The World's smallest Giant



The EMPIRE Aristocrat portable typewriter is a veritable giant in performance, with many of the usual features of a first-class "unportable"—yet it weighs only 8½lb and stands no higher than a matchbox! It accompanies business men, secretaries, journalists, novelists, lecturers—all who have writing to do—on their journeys at home and abroad, it stands up to any amount of work like the true Britain it is. The EMPIRE Aristocrat in fact makes a good impression—anywhere. Price 19 guineas

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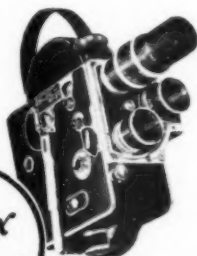
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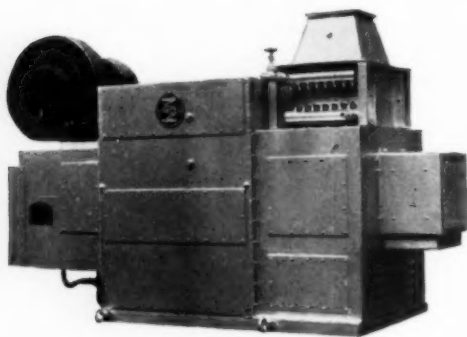




stand. This time the problem is controlled dehydration of air and process gases.

Lectrodryer equipment absorbs moisture from air or process gases through the drying agent, Activated Alumina. This hard, granular porous material takes up moisture on its surface and gives it up when heated—without deterioration.

Examples of both types of drying equipment are on view—those for controlling humidity in large, enclosed rooms and those used in drying gases for industrial processes.



The Lectrodryer by Birlec Ltd.

ses. (Birlec Ltd., Tyburn Rd., Edington, Birmingham 24. Stand D.509, Castle Bromwich.)

Power Tool Parade

THE powerful 10in. portable ball-bearing electric saw and H.D.I. building and maintenance hammer kits are "newcomers" to the B.I.F. They form part of the comprehensive display of electric tools and equipment on the Wolf stand which includes: portable electric drills, screwdrivers, portable and stationary grinders, solderguns, polishers, hammer kits, valve seat grinders, valve and engine servicing kits, valve refacers, Mobilelectric

engine workshop and Cub home constructor equipments. (Wolf Electric Tools Ltd., Pioneer Works, Hanger Lane, W.5. Stand C.603, Castle Bromwich.)

Skate Wheel Conveyor

FULLY tested since it was first shown at the 1950 B.I.F., the Skate Wheel conveyor is still a feature at the Lamson stand. Light in weight (32 lbs.) it is sturdily constructed and can carry a load of 150 lb.

Other materials handling equipment on display will include the static conveying system, mobile conveyor units, vacuum cleaning equipment and pneumatic tube systems. (Lamson Engineering Co., Ltd., Hythe Rd., N.W.10. Stand D.210, Castle Bromwich.)

Quick Cutter

HAVING a special blade for cutting through occasional nails, the name given to the Ripsnorter portable electric saw seems appropriate. It is made in two sizes (7 or 9in. dia. blades) and is designed



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This is the machine YOU have been waiting for—but you need wait no longer, because A.C.E.C. can supply you without delay. It is the last word in dictating machines, and has just the features every executive dreams of—unerring efficiency in "taking down" by a secretary who does not interrupt, catches every word and, by the flick of a switch, reads back exactly what you've said in the way you've said it! If you want to correct your last sentence, you simply re-dictate the improvement you want, and the previous wording is automatically obliterated by recording the new.


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so that various type blades can be interchanged.

Useful for a wide variety of jobs from wood, cement to non-ferrous metals, the saw is only one item in a range of portable electric tools that are being displayed. These include drills from $\frac{1}{4}$ in. to 1 in. capacity; screwdrivers which will drive screws up to $3\frac{1}{2}$ in. No. 18 wood; electric hammers for chipping, chasing, and drilling in concrete, brick or stone; bench and portable grinders; wood or metal sanders, polishers, tappers, drill stands, etc. (Black & Decker, Ltd., Harmondsworth, Middx. Stand C.607, Castle Bromwich.)

For Liquid Concrete

DESIGNED to give a "lift" to the building, road and pavement repair industry, a one-ton capacity universal tipping model auto-truck will handle liquid concrete. The vehicle is powered by a 300 c.e. single cylinder engine having three speeds—two forward and one reverse.

Also exhibited are versatile models of the utility truck includ-

ing the two-ton elevating platform unit and the well-type elevating model. (R. A. Lister & Co. Ltd., Dursley, Glos. Stand D.205, Castle Bromwich.)

Cabinets for Overseas

"KNOCKED down for export" describes a range of quarto and foolscap filing cabinets, designed for space saving in transport. (These cabinets are available with either two-point or roller bearing slides.

Also on display at the Valor stand is a range of racking, steel shelving, lockers, cupboards, waste paper tubs and transfer boxes, etc. (The Valor Co., Ltd., Bromford, Erdington, Birmingham, 24. Stand B.401, Castle Bromwich.)

Speedy and Sensitive

FOR automatic control of industrial processes, the *Servopack* is a speedy and sensitive electronic mechanism which cuts down the necessity for continuous process supervision.

The three-part unit (detector,

HANDY UTILITY



This $\frac{1}{2}$ in. Handy Utility portable electric drill is one item in a range of electrical equipment within reach of small businesses, the handyman, etc. Packed as a single unit or as a complete drilling, buffing and grinding kit, it can be adapted to many purposes. (Black & Decker Ltd., Harmondsworth, Middx. Stand C.607, Castle Bromwich.)



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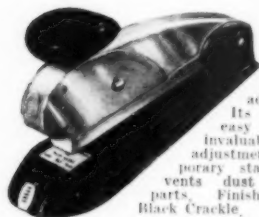


is a one-hand Stapler for all tacking purposes. Simple adjustment enables staples to penetrate the hardest wood. Easy loading, jam-proof, quick removal of Staple Bar for cleaning. Finish: Polished Chromium.

MODEL No. 125 incorporates many new features, which will ensure years of trouble-free service. Invaluable for fastening address labels on to wooden cases, etc., etc. Finish: Black Crackle Enamel and Polished Nickel Plate.

MODEL No. 117 is designed for fastening lids on to wooden boxes by means of Hard Steel Wire Staples having pin and pin shanks. Where it is necessary to drive a long shank staple without clenching this model meets your requirements. Finish: Black Crackle Enamel and Polished Nickel Plate.

"McGILL'S" OFFICE STAPLER No. 127



Here is a Stapler which adds grace to any office desk. Its strength, reliability and easy loading make this Stapler invaluable for general use. Instant adjustment for permanent or temporary stapling. Enclosed feed prevents dust from clogging working parts. Finish: Chromium Plate and Black Crackle.

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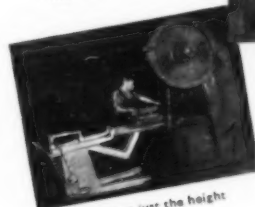
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amplifier and motor) has been installed for automatic guiding of cloth into stentering machinery. Makers claim that in this instance speed of work has been more than tripled with considerable improvement in the work standard.

Deviation of material through an industrial process is counteracted by the motor which automatically changes speed or direction according to the degree of deviation.

This item is one of a wide range of electrical equipment which is being displayed on the Ferranti stand. (Ferranti Ltd., Hollinwood, Lancs. Stands C.615 & 514, Castle Bromwich.)

Increased Range

A DEVELOPMENT in the MotaVeyor, the well established belt conveyor manufactured by J. Collis & Sons, Ltd., is the medium type, which greatly increases the range of application of this equipment. In its latest form the sectional construction of MotaVeyor permits a lengthening or shortening as changes in shop layout demand.

There are four types which have been developed from one basic design. (J. Collis & Sons, Ltd., Regent Square, Gray's Inn Road, W.C.1. Stands D.522 and 623, Castle Bromwich.)

Unit Heater

A NEW development by a pioneer British manufacturer of unit heaters, features several design improvements. The sturdy, attractive



The MotaVeyor belt conveyor.

New Standard Calorier has an easily accessible battery, balanced suspension and light-weight construction. Other models available include those with outputs—using steam — of 40,000 to 500,000 B.T.U.'s per hour. (The Standard & Pochin Bros. Ltd., Evington Valley Rd., Leicester. Stand B.414, Castle Bromwich.)

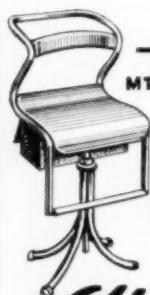
Switchgear Exhibits

PARTICULARLY applicable to the job of power station auxiliary control, two exhibits of air-break switchgear are on display at the G.E.C. stand.

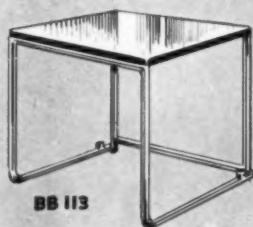
The medium voltage unit is suitable for voltages up to 660, and breaking capacities of 15, 25 and 30 MVA; the 3.3 kV unit can be used in current ratings of 800, 1,200 and 2,000 amps, with breaking capacity of 100 and 150 MVA.

Units for current ratings up to 800 amps, are available either in single or double tier form, and for heavier current ratings—exceeding 800 amps, and up to 2,000 amps.—a single tier cubicle is used.

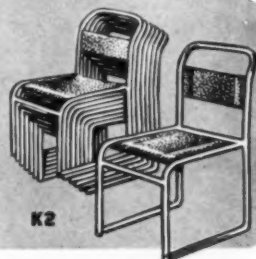
Continued on page 110



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BB 113



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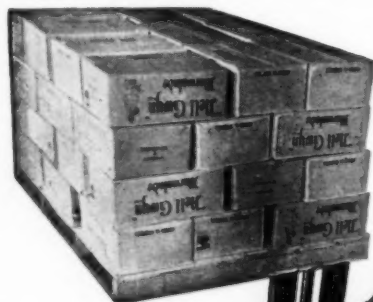
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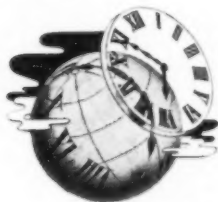


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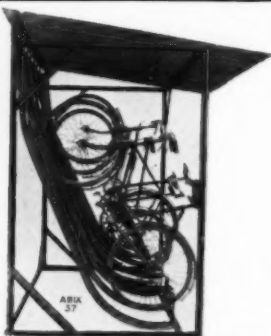
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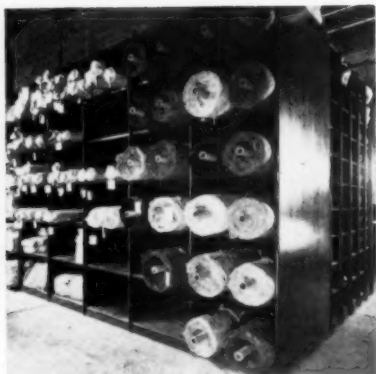
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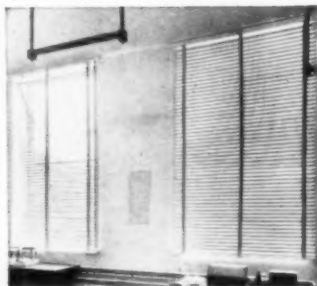
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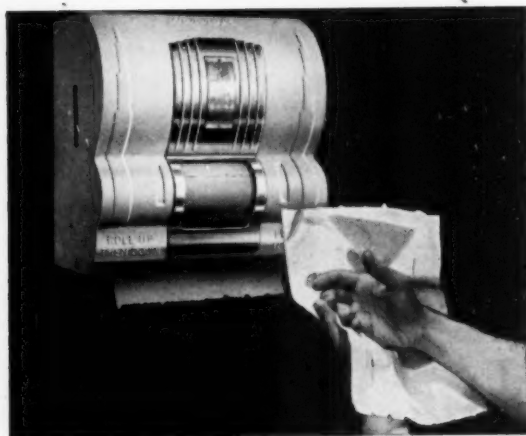
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Cloakroom Equipment

SOLELY concerned with production of cloakroom and clothing storage equipment, this company is showing a variety of products.

Hat and coat hooks, clothes lockers, clothes and slipper baskets, towel lockers, hat hooks, coat hangers, seat lockers, seats, wire-work panelling, factory partitions and barriers are among the articles on display. (*Cloakroom Equipment Ltd., Station Street, Bromsgrove, Worcs. Stand B.522, Castle Bromwich.*)

First Aid Developments

INDUSTRIAL first aid methods must keep pace with industrial progress and medical research. A display of first aid materials including the latest type of dressings, penicillin treatments, plasters, first aid kits and ambulance room furniture, etc., demonstrates the up-to-date materials now being used in the first aid field. (*Cuxson, Gerrard & Co., Ltd., Oldbury, Birmingham. Stand B.516, Castle Bromwich.*)

Protective Gloves

LIGHT in weight, fully flexible, and with high abrasion resistance, a new development in general purpose commercial gloves makes use of durable P.V.C. impregnated material. With knitted cotton wrists, the gloves are suitable for use under general handling conditions.

For protection of hands when dealing with materials used in the food industry, a special white P.V.C. impregnated non-toxic material glove is also available. These gloves will resist certain chemicals including tetraethyl lead.

Also on display are P.V.C. aprons which are light and comfortable to wear. They are easy



Lightweight P.V.C. gloves by
James North & Sons Ltd.

to clean with soap and water—spirits in the case of grease—and have chromium plated eyelets where the ties join the garment. (*James North & Sons Ltd., Godley Mills, Hyde, Cheshire. Stand P.71, Earls Court.*)

Portable Sun Lamp

SUN-RAY lamps have other uses besides producing "synthetic" holiday tans. The new portable Lido ultr. violet/infrared 300 watt sun lamp is useful for preventative or curative treatment in the industrial health department.

Weighing only 3½lb. and completely portable, the unit is enclosed in an attractive case. Sun-ray therapy for treatment of certain ailments is gained through a high pressure quartz tube emitting ultra violet rays and a radiant heat element emitting infrared rays. Treatment lasts about one minute taken at a distance of one yard. (*Perihel Ltd., 17-19 Edge Street, W.8. Stand D.52, Olympia.*)

Clothes Drier

WET clothing draped over radiators or left dripping from clothes hooks are familiar sights at the works on wet days. The 24-hook industrial clothes drier on display demonstrates that workers' clothes can be cheaply gas-dried while left hanging in the cloakroom.

With a rack for shoes, the unit acts as a self-contained hot water circulation system burning only 10 cu. ft. of gas per hour (approx.). It stands 6ft. 4in. high and offers no danger of burning or singeing to clothes or shoes. (*Radiant Heating Ltd., Radiant Works, Barnsbury Park, N.1. Stand D.766, Castle Bromwich.*)

Stops Skin Disease

A BARRIER preparation developed for use against occupational dermatitis is on show at Stand D.706. Called *Rozalex*, the preparation is made to combat most of the known causative agents of the dreaded range of common skin complaint. (*Rozalex Ltd., 10 Norfolk Street, Manchester, 2. Stand D.706, Castle Bromwich.*)

Press Guards

ANOTHER B.I.F. "working" exhibit concerns safety. It is the *Fastrip Type 2* press guard, shown in use with arrester gear, which eliminates any possibility of the press making a power stroke when the guard is open.

The *Type 1a* and *Type 3* guards are also shown under working conditions. This display demonstrates the different methods of control—hand operation, foot operation (mechanical) and air operation through foot pedal valve. (*J. P. Udall, Interlock Works, Court Rd., Birmingham, 12. Stand D.630, Castle Bromwich.*)

Circuit breakers in all cases are mounted on carriages and may be completely withdrawn from cubicles. They can be arranged for solenoid, spring or manual operation, emergency hand-operation being provided in all cases. Both medium voltage and 33 kV equipment allows withdrawal of the circuit breaker on its carriage for completely safe inspection and maintenance. (*The General Electric Co., Ltd., Magnet House, Kingsway, W.C.2. Stands C.503 & 402, Castle Bromwich.*)

Multi-Screw Extruders

TWO sizes of multi-screw extruder will be on show and both are exceptionally useful for compounding and colouring moulding and extrusion compounds in vinyl, cellulose and polystyrene materials.

The 65 lb per hour (average output) model is driven by a 5 h.p. motor through a three-speed gear box. Second unit, the 100 lb. per hour extruder, has a 10 h.p. continuously variable power unit.

Features of both machines are the forced feed lubrication to all

points; automatic hopper feed synchronised with screw speed, and electrical heating to barrel and die, with a control cabinet incorporating three controlling pyrometers. (*R. H. Windsor Ltd., Royal London House, 16 Finsbury Sq., E.C.2. Stands C.231 & 110, Castle Bromwich.*)

Largest Portable Compressor

WEIGHT, 7½ tons; length, 16ft.; width, 7ft. and height, 8ft. are the dimensions of what the makers claim to be Britain's largest portable air compressor. Known as the *Model PO-8-500*, it has a delivery of 500 cu. ft. per minute at a pressure of 125lb. per sq. in. Power is supplied by a Ruston



Model PO-8-500 air compressor.

diesel engine. (*The Consolidated Pneumatic Tool Co., Ltd., 232 Daves Rd., S.W.6 Stand Outdoor 1308, Castle Bromwich.*)

Model Exhibits

ENGINEERING feats in miniature are always an attraction at the Castle Bromwich section of the B.I.F. This year, the English Electric Co., Ltd., present two models of power generating equipment which are now in operation in Britain and overseas.

A working exhibit, the small-scale replica of a 73,000 h.p. water turbine, is part of a large-scale installation at Castelo do Bode in Portugal. Original of the model 60MW hydrogen-cooled turbo-alternator on display is in use at the Stourport station of the British Electricity Authority.

Besides the third model—an extensive diesel engine power station—other displays of electrical equipment are shown at this stand. These include: photographs of air-blast circuit breakers and large transformers; a modern power

Continued on page 117

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BIRMINGHAM: 12, Whitmore Road. Tel. VICTORIA 1615. MANCHESTER: 530, Stretford Road. Tel. TRAFFORD PARK 0288.

A centralized tea service saves production time

By HAMISH ROBERTSON

By centralizing all tea-making equipment in a single building and distributing it to workers at their machines, British Insulated Callender's Cables Ltd. cut out lost working time caused by disorganized production. Workers now get hot tea at fixed times from multipots distributed by trucks—and ten minutes to drink it.

THE tea distribution scheme recently put into operation at the Helsby Works of British Insulated Callender's Cables Ltd., is a good example of how the mid-shift tea break can become a production asset. Catering for more than 2,000 employees, who are spread over a considerable area, the system has shown itself satisfactory to both workers and management. The former have hot tea, quickly served; the latter, rigid control and no loss of working time.

A survey of the old system showed that a loose distribution scheme, plus a variable break

period, spelled disorganization and a loss of valuable production time. Tea was distributed by trolley from three kiosks situated in different parts of the works; each trolley serving several different departments. Thus, distribution was not simultaneous, department by department, and the service took a considerable amount of time to complete.

With these points in mind, it was decided to initiate a fixed ten minute break, morning and afternoon, and to provide a simultaneous tea service to all departments. A careful check of the works layout indicated that this could best

be achieved by *centralization* of the tea-making process. Actual distribution would then be accomplished by an organized trolley system operating directly between the "base" and outlying departments.

An existing building was converted into a tea-making station, housing a battery of six steam heated, constant-flow water boilers. Run by a staff of three girls and a supervisor, the station was organized into an efficiently operated tea making unit. The boilers themselves are so mounted that when the trolleys carrying stainless steel multipots are wheeled into position, boiling water pours directly into the infusers without any heat loss.

Throughout the whole station, great care has been taken with every detail of the tea making process. For example, a special trolley has been constructed for housing the infusers after they are withdrawn from the multipots. Holes have been cut in the upper tray of this trolley so that these infusers are easily put away in a clean place. Tea dripping from the used infusers does not make a mess on the floor—the trolley has been designed with a removable lower tray to catch the drips.

The difficulty of distance between the centralized tea making station and the outlying sections

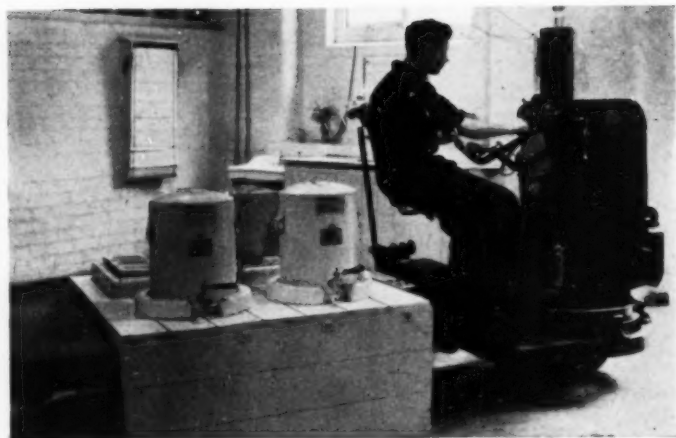


The battery of six steam heated water boilers in the tea station at the Helsby works.

of the works has been minimized by another ingenious adaptation. A special rack has been constructed to fit over the platform of one of the factory's electric trucks. This rack has compartments to hold the various multipots and milk cans in place while they are being transported to the outlying distribution points.

Girls from the various works departments help with the internal tea distribution. Arriving virtually on the stroke of the break period signal, the tea is poured into cups which have been placed on trays arranged in a central position in each department. When the signal sounds, appointed employees take a tray holding about a dozen cups, distributing them as arranged. Tea is consumed at the machines and each employee has a full ten minutes for the purpose.

A critical attitude towards the tea making and the service is encouraged. Representatives of the works joint consultative and advisory committee take it in turns



This factory truck delivers tea to outlying sections of the works.

to inspect all aspects of the scheme. Suggestions for further improvements are invited. It has been found, however, that workers think the scheme highly satisfactory. Where previously they had to wait for their tea—which was often cold on arrival—they now have a service which produces good, hot

tea at a fixed time, morning and afternoon.

This satisfactory response from employees, together with the time-saving results achieved, is adequate compensation to the management for the planning and re-organization which were necessary to put the scheme into operation.

B.I.F.

CANTEEN EQUIPMENT

NEWS

For Canteen Tea

STEAM operated, the *Calomax* boiler produces instantaneous freshly boiled water at a rate of up to 22 pints a minute for canteen tea making.

The boiler uses no steam unless water is actually drawn and it is impossible to obtain either stale or simmering water. The unit is available in three sizes, *Model CP3* for working pressures up to 100lb. per sq. in.; *Model CP3X* for pressures up to 200 lb. per sq. in., and *Model CP3H* for use with a hard water supply. (*Calomax (Engineers) Ltd., Brunswick Terrace, Leeds, 2. Stand B.718, Castle Bromwich.*)

Canteen Cooker

ONE of the advantages of the *Model C20* electro-steam cooker on display is that it produces three pints of actively boiling water

every three minutes. Useful for canteen tea making, the boiling water is drawn off from a tap at the front of the unit. Another central tap also produces 1½ gallons of hot water.

A simmering or low temperature oven will hold the equivalent of 12 to 16 two-pound fruit jars. Cooking and water heating functions are automatically controlled—a thermostat cutting off power supply when the required temperature is reached.

The hob is composed of an 8in. radiant, rapid boiling and simmering plate, a 3-heat, 84 sq. in. regulation grill boiler and two steam cooking wells with interiors and lids. A grill chamber and a large thermostatically controlled oven are other features of interest.

Besides other models of the electro-steam cooker, the display

includes examples of the new *Autosafe* electric kettle element and thermostatically controlled immersion heaters. (*Gillott Electro-Steam Cookers Ltd., Cotswold Works Chalford, Nr. Stroud, Glos. Stand C.416, Castle Bromwich.*)

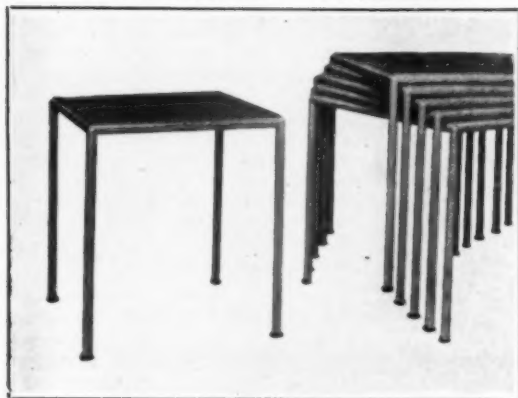
Four in One

NAMED the *Electric Chef*, and literally four machines in one, the electric food mixer on display at the Kenwood stand would make an admirable canteen fixture.

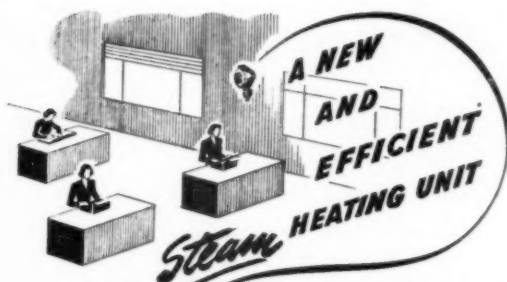
The "planetary" system mixes, blends, whisks ingredients, kneads dough, and makes pastries; a power outlet minces meat, chops and dices vegetables; a low speed outlet enables fruit juices to be extracted from solid fruit, and a special high speed outlet is used for liquifying vegetables and fruits.

A governor type controller ensures constant speed control over the whole speed range—the rotary speed control knob enabling speed to be adjusted progressively. Attachments include a "K" mixer, dough hook, whisk, fruit juice extractor, meat mincing and vege-

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MAY, 1951



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table chopping unit, liquidiser attachment, collander and sieve.

A separate unit on display, the *Kenmix* electric liquidiser, liquifies vegetables and fruit, grinds coffee, blends drinks, pulverises nuts and desiccates coconut. (*Kenwood Electric Ltd., 151 Oxford St., W.1. Stand C.233, Castle Bromwich.*)

Quick Boiler

A BULK supply of boiling water produced quickly is the feature of a new type quick service boiler being displayed by *Maxol Heaters Ltd.*

Two or more draw-off taps can be used to give a bulk supply of boiling water, after which a continuous flow may be obtained at a reduced rate. Further canteen appliances are also on show. (*Maxol Heaters Ltd., Mytton St., Manchester, 15. Stand D.334, Castle Bromwich.*)

Proficient Pulveriser

ON DISPLAY elsewhere at the B.I.F. is a large "swing hammer" pulverizer which will reduce cer-



Kenwood Electric Chef food mixer by Kenwood Electric Ltd.

tain materials at rates up to 200 tons per hour. Though a miniature by comparison, the works canteen *Cheeto* pulverizer on display at this stand does its own job as effectively and quickly.

For grinding coffee, shredding vegetables, making purees, chopping mint, etc., or making bread

crumbs, the little kitchen pulverizer is operated from a small motor which revolves the blades. It is easily cleaned as the small cup containing the blades is detachable and the jar container is designed with a wide mouth. Extra jars are available for storing foods.

Also on display is an adaptable electric mixing machine. A feature of the unit is that it can be detached from the stand and used as a hand mixer for mashing potatoes, etc. (*John Perry & Co. (Plastics), Ltd., 105 Perry St., W.1. Stand V.31, Earls Court.*)

Large Scale Cooking

AN open invitation has been extended by *Radiation Ltd.*, to visit their stand for technical advice and information about large-scale cooking and canteen installations.

The display of solid fuel appliances includes a range of cookers, solid fuel fires, convector grates, combination grates and heating appliances (*Radiation Group Sales, Ltd. (Solid Fuel Division), Leeds, 12. Stands B.501 & 400, Castle Bromwich.*)

SōLITE, The *FLUORESCENT* Lamp for the Executive's Desk



Give your desk its own modern fluorescent lighting. SOLITE is indeed a handsome unit, that conveys a quiet air of modernity which denotes intelligent lighting care and selection. The shadowless glow eliminates eyestrain so often associated with single point lighting. Fitted with radio interference suppressor.

Supplied in colours Black, Burgundy, Olive Green or Cream.

Crackle finish with Chrome supports.

A.C. mains 200/20 or 230/50 Volts.

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Continued from page 110

station control board; standard distribution transformers; fuse gear; variable speed spinning frame motor and domestic electrical appliances. (*The English Electric Co., Ltd., Queens Hse., Kingsway, W.C.2. Stands C.613 & 512, Castle Bromwich.*)

Change of Air

A CHANGE of air is as important to production as a change of oil. How this can be accomplished in small or large factories is demonstrated at the Colt Ventilation Ltd. stand.

Based on the unit principle, these ventilators can be used singly or in small numbers to remove excess heat or fumes from "hot spots." If necessary, they can be built into a large, comprehensive system of balanced ventilation to give any desired number of air changes throughout the factory. (*Colt Ventilation Ltd., Surbiton, Surrey. Stand B.506, Castle Bromwich.*)

Spot Welder

AN OUTSTANDING feature of the S.A.T.75 spot welder is its range and flexibility. Not only can light alloys up to two equal thicknesses of $\frac{1}{16}$ in. be welded, but hard brass and galvanized and other coated materials up to 12 s.w.g., and thicker gauges of mild steel, can all be easily welded as pulsation control is a standard fitment.

The patented three phase system gives greater consistency in the welds, lengthens the life of the electrodes and considerably widens the application of resistance welding. (*Sciaky Electric Welding Machines, Ltd., Farnham Road, Slough, Bucks. Stand C.222, Castle Bromwich.*)

Weight and See

A LIGHT projection indicator and rapid tare adjustment device are features of an interesting platform scale displayed by W. & T. Avery, Ltd.

The load weight indicating system of this scale uses a ground glass screen which indicates net weight in magnified numerals measuring $\frac{7}{16}$ in. deep. Tare is optically indicated on a separate screen and is effected by simply turning a small handwheel.

Also shown is a counting scale,



THE R.E. WATCHMAN'S AUTOMATIC PATROL CHECK UNIT

AS INSTALLED AT THE FESTIVAL OF BRITAIN

- Warns Watchman of commencement of Patrol
- Records completion of Patrols
- Leaves Watchman's hands free at all times
- Robust and foolproof

LARGE OR SMALL INSTALLATIONS

COMPETITIVE PRICES

The most satisfactory apparatus available — safeguarding You and Your Watchman

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Manufacturers of Counting Equipment of all descriptions

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**GREAT METROPOLITAN
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73 KINNERTON STREET,
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SLOane 0047 (7 lines)

INDUSTRIAL CHAIRS



Price

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each,

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A light, strong and inexpensive chair, designed to comply with modern factory requirements.

The steel framework is stove-enamelled green and the seat and backrest are stained mahogany colour.

The seat is 24" high and has a receptacle beneath for personal belongings.

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Amselock will accommodate ANY size of card!

Adjustment can be effected to within a quarter inch of any card or document size. The drawers can be divided as required for any size of record, and the units are so constructed to give solid cabinet strength and appearance.



Photograph shows the Amselock Partition element being inserted for immediate use in one of the four drawer sizes.

Amselock have achieved a successful solution to the problem of providing maximum filing capacity in minimum space. Four standard drawers differing only in height, provide filing capacity for any dimensions of card, file or paper, etc.

This internal flexibility can then be combined with the established Amselock system whereby individual cabinets are readily integrated into assemblies or desks, combining functional efficiency with maximum space economy.

Problems on filing continuously arise—AMSELOCK can make an important contribution to their solution. Consultation with us places you under no obligation.

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Amselock

(FILING & RECORDS EQUIPMENT) LTD.
33 KINNERTON STREET,
KNIGHTSBRIDGE, LONDON, S.W.1

Continued from page 117

fitted with a roller track and capable of counting large quantities of articles of the same weight. Self indicating scales and testing machines are also shown. (*W. & T. Avery, Ltd., Soho Foundry, Birmingham 40. Stands D.523 & 420, Castle Bromwich*)

Magnetic Attraction

OBVIOUS proof that the magnetic principle is involved in nearly every branch of British industry is given at the stand of Rapid Magnetic Machines Ltd. Examples of equipment used by firms producing anything from textiles to tobacco are on view.

A new device exhibited is the *Magna-trap*, a unit for extracting ferrous impurities from many liquid and semi-liquid products conveyed by pipe line. (*Rapid Magnetic Machines Ltd., Lombard St., Birmingham 12. Stand C.421, Castle Bromwich.*)

Quick Change Machines

"A FACTORY in itself" aptly describes a combination wood-working, metal turning and spinning lathe incorporating a comprehensive range of attachments which is being shown.

All driven from one self-contained motor, three attachments may be mounted at one time. Various combinations are possible and changeover time is rapid—only a matter of seconds. (*Coronet Tool Co., 14 Cromwell Rd., Derby. Stands A.327 & 326, Castle Bromwich.*)

Woven from Wire

AN EXHIBITION of woven wirecloth featuring sieving material so fine that it has 40,000 holes per square inch, forms part of a display of wire and metalwork products at Castle Bromwich.

Brightly coloured light-weight shopping baskets with collapsible handles; folding welded crates, quickly assembled and collapsed; perforated metals for industrial and decorative work; and wire sieves and screens are also included in the display. (*Thomas Locker & Co., Ltd., Warrington, Lancs. Stand B.522, Castle Bromwich.*)

Office Equipment Industry News

B.I.F. Prospects

ALTHOUGH only three weeks are to elapse between the closing of the British Industries Fair and the opening of the Business Efficiency Exhibition, the office equipment section at the Fair is the biggest the industry has yet had. It occupies the whole of the ground floor at the Empire Hall at Olympia and the over 60 exhibitors' stands run to well over 25,000 square feet.

The O.A.T.A.'s special secretarial and typing service for overseas buyers is again available, both at Earls Court and Olympia, under the direction of Mrs. S. S. Elliott, M.B.E., who is both a joint director of the section with Mr. W. Wylton Todd, A.R.I.B.A., and joint secretary with Mr. D. C. Scoones, of A.B.B.E.M.

Among the fresh exhibitors this year will be E.M.I. Sales and Service, Ltd., who joined the O.A.T.A. in January. Other new members to the Association so far this year include E. Shipton & Co., of Northwood Hills, Middlesex, manufacturers of the "Interchief" loudspeaking telephone system, and T.S. Office Equipment Ltd., of London, sole agents in Great Britain and Ireland for *Everest* typewriters and calculators.



MORE than a score of manufacturers of filing and indexing equipment participated in an exhibition at the Caxton Hall, London, on March 20th, organized in connection with the Office Management Association's one-day conference on filing methods.

The O.A.T.A. had approved participation of their members and the show occupied both the ground floor and the gallery of the main hall. Among the exhibits was the latest table-model microfilm camera of Kodak's, now made in this country. Carter-Parratt's were demonstrating the latest *Vistem* visible record system, now claimed

as the fastest and most flexible of its type in the world. Opportunities for mis-filing are reduced to a minimum by an automatic signal which flashes the missing card.

Cardwheels were much in evidence and E. N. Mason had on show the new Chatwood-Diebold Cardincer.



THE 1952 Business Efficiency

Exhibition will again be held early. It is to open at Bingley Hall, Birmingham, on May 7. Day after the Exhibition closes will mark the silver jubilee of the O.A.T.A.'s incorporation. Previously known as the Association of Office Appliance and Equipment Manufacturers and Traders, the present organization was inaugurated on May 12, 1920, and incorporated on May 18, 1927. It has grown from a nucleus of some twenty members to a membership of nearly 150 or virtually the whole of the industry eligible.

The last time the B.E.E. was held in Birmingham was fifteen years ago. At that time total deliveries of office machinery amounted to about £150,000 a month. Last year the average monthly total was approximately



This O.A.T.A poster announced the 1951 Business Efficiency Exhibition.

MAY, 1951



'I'll be round right away . .

I'm your Imperial Agent. Just give me a ring if you need any advice on your typewriters. You'll be interested to learn of the many ways in which typewriters can help you with your office routine'.

Your nearest Agent is in the Telephone Directory under 'Imperial Typewriters.'



Imperial Typewriters
and Service

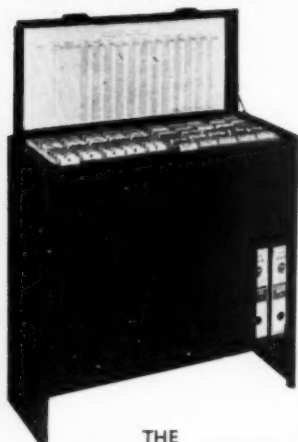
IMPERIAL TYPEWRITER COMPANY LIMITED, LEICESTER.

'READYRECORD' filing furniture

Pat. No. 588335, and Pat. applied for.



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for the
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FOR

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Dignity of appearance
Economy of space

All your files instantly located
at the most convenient level
QUARTO, FOOLSCAP or BOTH
Capacity approx. 100 files
Bottom section 5 cu. ft. storage
capacity. Central lock,
Polychromatic finish

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VICTORIA 4238-3485

£1,820,000, an increase of between
1,100 and 1,200 per cent.



MR. H. J. Finer, of Constructors, Ltd., has been forced by ill health to relinquish the chairmanship and the position of joint managing director and has been appointed president of the company—a new office.

Constructors, Ltd. are rapidly expanding their activities and during the last year have registered subsidiaries in the Union of South Africa and in Australia. In addition they have recently acquired the share capital and undertaking of Seldex Ltd., manufacturers of office filing systems, etc.



GROUP trading profits of Powers-Samas Accounting Machines, Ltd. again topped the million level in 1950, but showed a slight drop of £46,086 to £1,040,401.

The company, which is controlled by Vickers and has agreements with Remington Rand Incorporated and the Tabulating Machines Corporation of U.S.A., was made public in June, 1948. It is paying an unchanged dividend of 45 per cent. on its £520,000 capital. The company's reserves are now approximately four times the amount of the share capital.

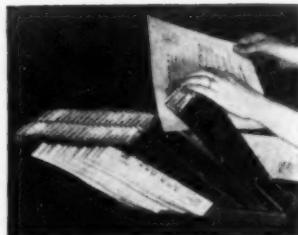


JOHN Dickinson & Co., Ltd., paper makers and manufacturing stationers, announce record profits for 1950 of £2,742,397, an increase of £847,200 on the year. The dividend has been increased from 12½ to 15 per cent.



THE latest issue of *Arclight Review*, the monthly publication of E. N. Mason & Sons, Ltd., contains a reprint of the review of the report of the management accounting team of the Anglo-U.S. Productivity Council, published in the January issue of *BUSINESS*.

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STORES—STATIONERS and DEALERS
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TELEF (LONDON) LTD.

10 St. Albans St. Haymarket, London, S.W.1

BUSINESS

He talked to his workers

Continued from page 51

conveyors. One shop, however, contains an interesting example of the use of a specialized conveyor in a processing operation. This is the coreplate shop producing stampings for transformer and alternator coreplates. This operation in some other factories is carried out by a sequence of stamping and shaping motions on separate machines. In this department the silicon-steel sheet is stamped out in one operation on a battery of presses from which the plate is manually transferred to a belt while the scrap metal is placed on the return belt travelling in the opposite direction. Sloping sides built around the return belt provide a deeply concave receptacle for the waste, which is delivered to the store for baling. This system has halved the labour cost of production and greatly reduced the effort required of the operatives.

Cutting Production Time

A production idea that is ahead of general practice in the engineering industry is Parsons' method of filling steel pipe with sand as a preliminary to bending it. It is necessary that each pipe shall be completely filled and free of air pockets, and this is ordinarily ensured by tapping every square inch with a 2-lb. hammer. This is a task for a workman with a trained ear for variations in the ring of the sand-filled metal. As the pipe-lengths can be thirty or forty feet long, this operation of filling and testing can take 14 hours. Parsons do the job in one hour. The sand is dumped through a grating to a bin under the shop floor, elevated to a heater where moisture is driven out and thence raised to a hopper. A pair of pipe-lengths is up-ended vertically and the sand poured into them through hoses from the hopper. The secret of their swift and compact filling is a vibrating mechanism clamped to each pipe.

Continued on page 122

MAY, 1951



Paragon Fanfold

ONE
*can do it
on*

ONE TYPIST can type the *basic data* for all these or any other combination of related routine records in **ONE OPERATION** on **PARAGON FANFOLD FORMS**. And she can do it with effortless speed: form and carbon interleaving is automatic.

See IT DONE IN YOUR OWN OFFICE

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reduced to **30 MINUTES**

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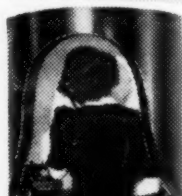


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NOISE

there's need for a . . .

BURGESS Acousti-Booth

Ever felt awkward on the telephone—unable to catch the client's name or what he was saying to you? Undoubtedly you have! And all the time you knew that the "bad line" (the excuse you probably made for your poor telephone reception)

was caused by noise disturbance at your end.

Telephone-frayed nerves become a thing of the past when you install a BURGESS ACOUSTI-BOOTH. Experience the relief of being able to 'phone without trouble in the midst of noise. Ask any man who owns one of the many thousands now in use.

Write for Bulletin B.P.131 S.C.B.



Burgess Products Company Limited, Acoustical Division, Hinckley, Leics.

In the same department is to be found another expedient that demonstrates the wisdom, from the standpoint of good production practice, of relieving workpeople of strenuous exertion. The sand-filled pipe is inserted into heaters to condition it for bending, and the furnace covers are, naturally, extremely heavy. When a hydraulic mechanism was fitted to lift the covers, not only were operatives saved a hard and hot job but the pipe could be clamped and secured to the hawsers before much loss of heat could occur.

Maintaining Deliveries

Neither good relations with labour nor the provision of the best available tools for them to use, however, wholly explains Parsons' success. Among electricity supply undertakings Parsons have earned the nickname of "The Stockists," an admiring tribute to their ability, rare enough in any industry producing large, custom-built installations, to offer delivery with the same reliability and promptitude as a company selling small goods from stock.

"In the same way that we 'sell' management to employees," said Sir Claude Gibb, "we sell to sub-contractors and suppliers this company's reputation for punctual delivery. The date for delivery shown on the order is the date on which we need the goods. It is not a request or a hope; it is a stipulation. Our time schedule is not drawn up with margins for error. If the supplier fails to deliver on time—well, he may expect the heavens to fall on him. We deal only with people who can give us delivery on time."

Buyers who are incredulous of the possibility of taking so tough a line with suppliers in this era of shortages may hold that, armed as they are with the priorities accorded to generating plant, Parsons enjoy uncommon advantages. However that may be, at annual meetings of companies manufacturing equipment of no less importance it has become a commonplace for the chairman to deplore the fact that,

owing to circumstances completely beyond their companies' control, the building of new plants and extensions is behind schedule. By contrast, when the British Electricity Authority induced Parsons to begin fabrication of steam pipes for generating stations the plant was completed two months ahead of schedule; they are now making a third of the country's output of this product.

In their dealings with customers Parsons accept the same obligations as they impose on their suppliers. Sir Claude explains their success in holding jobs to the schedule by their recognition of the principle that the man in charge of planning and progressing must know what each item looks like and how long it will take to machine; he must be a top-flight engineer.

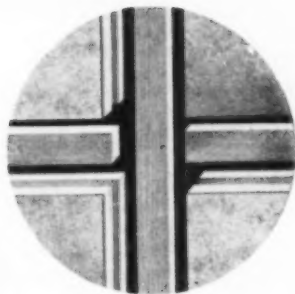
The Star List

One device adopted to ensure punctual delivery of especially important equipment is the chairman's "star list." Starred jobs are those for which the chairman has given customers his personal guarantee of delivery. The undertaking is not given unless the customer is able to use the equipment immediately he receives it, unless there is a genuinely urgent need for it, or unless the sale earns hard currency. These jobs are starred on the current list of work in progress so that everybody concerned with them—down to the man at the bench—shall be aware of the chairman's promise. But the system confers on the starred job no absolute priority and is not allowed to disorganize the production schedule. Preference is given only when a department is presented with the choice of putting a starred and an unstarred job on to the machines.

"We plan down to the last bolt and nut," said Sir Claude Gibb, "but occasional hold-ups are inevitable—because of inspection delays, for instance. If a job is ready for the machine it must stay on schedule. If it isn't ready, a starred item takes its place."

MAY, 1951

QUICKEST EASIEST method of erecting PARTITIONS



THERMAL AND SOUND
INSULATED
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The partitioning of floor space to form rooms and corridors is greatly facilitated by the use of

'K' PANEL PARTITION

The panels are practically self-erecting, and in two recent instances extensive assemblies were

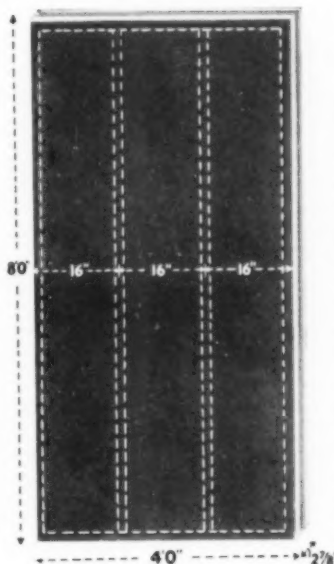
Installed during a weekend

ready for occupation on Monday morning. Each panel consists of a timber framing with intermediate studding, packed with heat-insulating sound-absorbing 'K' Slabs, and faced on each side with a double thickness of hardboard.

Only the very minimum of additional framing is required, and the hardboard facing will take any decorative finish.

The range of sizes covers all normal requirements, and full provision is easily made for the incorporation of windows and doors.

'K' Panel Partitions form a rigid and secure structure, but they may be rapidly dismantled and re-erected elsewhere if desired.



Above: A typical 'K' Panel.

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Presspahn Foolscap Folders, tabbed fifth, price 25/- per hundred. Lowthrop & Co. Ltd., 39 West Street, Hull.

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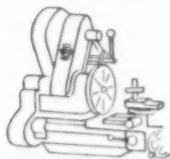
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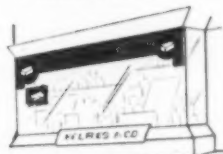
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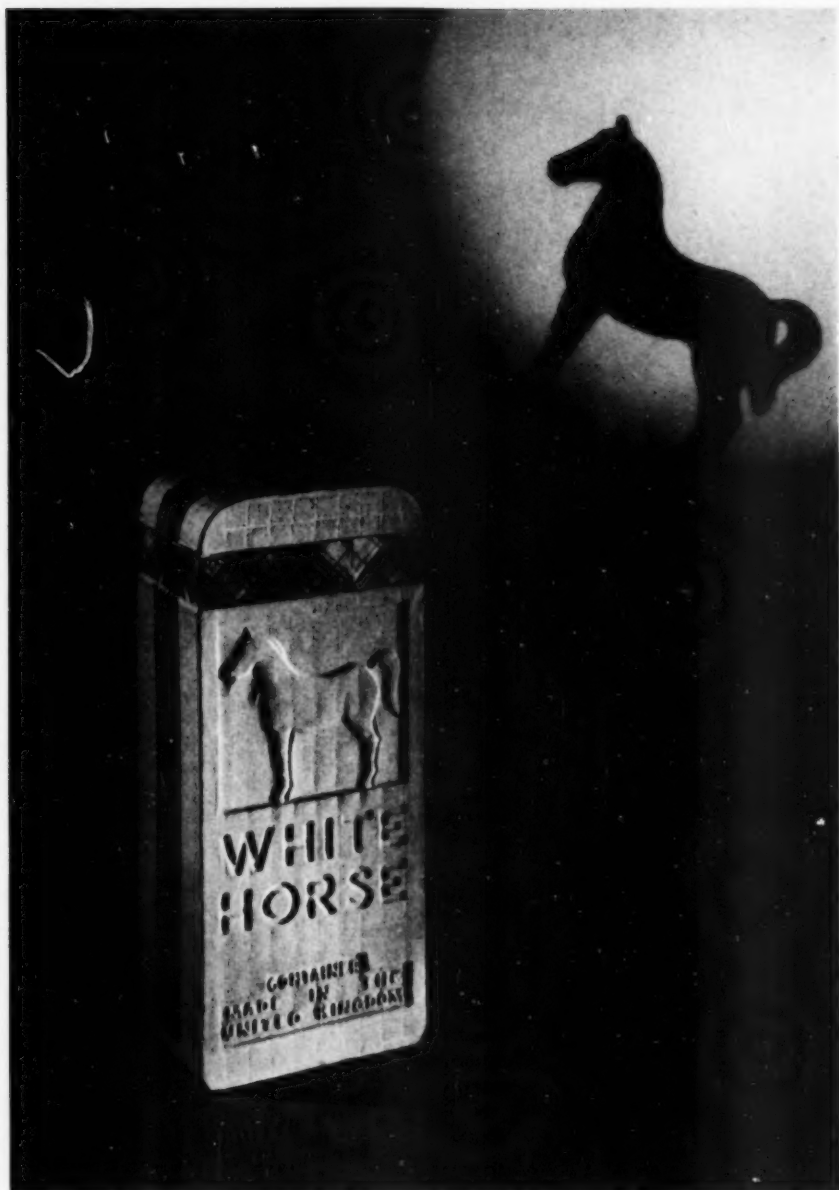


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